

EXHIBIT 47

COLOR



Humiseal thinner 521 MSDS

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[Thinner 521 | HumiSeal®](#)

[www.humiseal.com/products/thinners/th-521/ ▾](#)

Thinner 521 ... be adjusted for application purposes, using a compatible **thinner** from the table of Standard Solvent Based **Thinners**. ... button (1) **SDS Request** ...

[\[PDF\] HumiSeal® Thinner 521 EU Technical Data Sheet](#)

[www.humiseal.com/wp-content/uploads/2013/07/521-EU-TDS.pdf ▾](#)

HumiSeal® Thinner 521 EU has been formulated for sale in the European Union ... Consult the **Safety Data Sheet (SDS)** for more specific product information.

People also search for

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[https://www.paisleyproducts.com/content/files/.../msds/PCHU0521_msds_1_1_2015.p... ▾](#)

Feb 11, 2011 - 1.1. Product identifier. Product name. **HumiSeal Thinner 521**. 1.3. Details of the supplier of the **safety data sheet**. Company. **HumiSeal Europe**.

[\[PDF\] SAFETY DATA SHEET](#)

[https://webaps.ellsworth.com/edl/Actions/GetLibraryFile.aspx?document=10271... ▾](#)

Oct 21, 2014 - **HumiSeal Thinner 521** Version #: 09 Revision date: 01-10-2018 Issue date: 10-21- ... Show this **safety data sheet** to the doctor in attendance.

[HumiSeal 521 Thinner Clear 5 L Can - Ellsworth Adhesives](#)

[https://www.ellsworth.com/products/.../thinner/humiseal-521-thinner-clear-5-l-can/ ▾](#)

\$73.93 to \$92.84 - In stock

HumiSeal® 521 Standard Solvent Based **Thinner** is a mixture of solvents that is used to adjust the viscosity of compatible **HumiSeal®** coatings. 5 L Can.

[Humiseal Thinner 521 MSDS | MsdsDigital.com | Search our SDS ...](#)

[https://www.msdsdigital.com/humiseal-thinner-521-msds-0 ▾](#)

Mar 24, 2015 - **Humiseal Thinner 521 MSDS** | The new SDS required by OSHA are being added daily to check for a newer version of a safety data sheet ...

[HumiSeal 521 Solvent Based Thinner | Krayden](#)

[https://krayden.com › Technical Data Sheet ▾](#)

HumiSeal 521 is a solvent based **thinner** used the change the viscosity of **HumiSeal** coatings when needed.

[\[PDF\] Untitled - AMI-CON](#)

[www.ami-con.co.uk/.../Humiseal%20Thinner%20521%20MSDS.Image.Marked.pdf ▾](#)

EUROPEAN **SAFETY DATA SHEET**. **SAFETY DATA SHEET**. Page. 1 of 3. **HumiSeal Thinner 521**. Revision. Revision date. 13-Jul-2006. 1. IDENTIFICATION OF ...

521 MSDS - English (.pdf) - HumiSeal - Yumpu<https://www.yumpu.com/en/document/view/.../521-msds-english-pdf-humiseal> ▾**521 MSDS** - English (.pdf) - Read more about revision, **humiseal, thinner**, hazards, measures and suitable.**[PDF] Humiseal 1A33 TDS.pdf**<https://www.plasmarugged.com/uploads/pdfs/Humiseal%201A33%20TDS.pdf> ▾reduce the viscosity of **HumiSeal® 1A33** with **HumiSeal® Thinner 503** in order to obtain a uniform film. Once ... addition of **HumiSeal® Thinner 521** is necessary to ensure a uniform spray pattern resulting in ... Consult **MSDS/SDS** prior to use.**Free Humiseal 1A33 Guide | Humiseal**Ad blog.paryleneconformalcoating.com/Humiseal/1A33 ▾

Download Our Free Conformal Coating Guide. Request a Quote Today!

HumiSeal Brand Thinners | Solvent-Based CoatingsAd www.ellsworth.com/HumiSeal/Thinners ▾Adjust the Electronic Viscosity of Compatible **HumiSeal** Conformal Coatings. Certs & Documentation. Over 40 Years Experience. Industry Experts. Guaranteed Shelf Life. Global Corporation. Custom

Packaging. Inventory Management. Custom Formulation. 50+ Top Manufacturers.

Conformal Coatings · Labeling Printing & Inks · UV Curing Equipment · Lubricant Products

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SAFETY DATA SHEET according to 1907/2006/EC, Article 31

Page 1/4

HumiSeal Thinner 521

Revision 16
Revision date 2011-02-11

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name	HumiSeal Thinner 521
--------------	----------------------

1.3. Details of the supplier of the safety data sheet

Company	HumiSeal Europe
Address	Alasan House Albany Park Frimley Road Camberley Surrey GU16 7PH United Kingdom
Web	www.humiseal.com
Telephone	+44 (0)127 6691100
Fax	+44 (0)127 6691227
Email	techsupport@chasecorp.com
Local Supplier	
Company	Humiseal Europe
Address	Frimley Road Camberley Surrey
Telephone	+44 (0)127 6691100
Fax	+44 (0)127 6691227

1.4. Emergency telephone number

Emergency telephone number	+44 (0)127 6691100
Company	David Greenman 0800-1730

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

2.1.1. Classification - 1999/45/EC	Xn; R20/21 Xi; R38 R10 Symbols: Xn: Harmful.
Main hazards	Flammable. Harmful by inhalation and in contact with skin. Irritating to skin.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

67/548/EEC / 1999/45/EC

Chemical Name	Index No.	CAS No.	EC No.	REACH Registration Number	Conc. (%w/w)	Classification
Xylene	601-022-00-9	1330-20-7	215-535-7		R10 Xn; R20/21 Xi; R38	

HumiSeal Thinner 521

Revision

16

Revision date 2011-02-11

3.2. Mixtures**SECTION 4: First aid measures****4.1. Description of first aid measures**

Inhalation	Move the exposed person to fresh air.
Eye contact	Rinse immediately with plenty of water for 15 minutes holding the eyelids open. Seek medical attention.
Skin contact	Wash off immediately with plenty of soap and water.
Ingestion	DO NOT INDUCE VOMITING. Seek medical attention.
General information	
General information	Immediate medical attention is required.

SECTION 5: Firefighting measures**5.1. Extinguishing media**

	Use as appropriate: Carbon dioxide (CO2), Dry chemical, Foam.
--	---

5.3. Advice for firefighters

	Wear suitable respiratory equipment when necessary.
--	---

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

	Ensure adequate ventilation of the working area.
--	--

6.2. Environmental precautions

	Do not allow product to enter drains.
--	---------------------------------------

6.3. Methods and material for containment and cleaning up

	Absorb with inert, absorbent material. Transfer to suitable, labelled containers for disposal.
--	--

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

	Ensure adequate ventilation of the working area.
--	--

7.2. Conditions for safe storage, including any incompatibilities

	Store in original container. Store at temperatures between 5 °C and 25 °C. Keep in a cool, dry, well ventilated area. Keep containers tightly closed.
--	---

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****8.1.1. Exposure Limit Values**

Xylene	WEL 8-hr limit ppm: 50 WEL 15 min limit ppm: 100	WEL 8-hr limit mg/m3: 220 WEL 15 min limit mg/m3: 441
--------	---	--

8.2. Exposure controls

8.2.2. Individual protection measures	Avoid contact with eyes and skin.
Eye / face protection	Avoid contact with eyes. In case of splashing, wear:.. Safety glasses.
Skin protection - Handprotection	Chemical resistant gloves (PVC).
Respiratory protection	Wear suitable respiratory equipment when necessary. Wear:.. Suitable respiratory equipment.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

HumiSeal Thinner 521

Revision 16
Revision date 2011-02-11

9.1. Information on basic physical and chemical properties

State	Liquid
Colour	Colourless
Odour	Aromatic
Boiling point	140
Flash point	25

SECTION 10: Stability and reactivity

10.2. Chemical stability

	Stable.
--	---------

10.3. Possibility of hazardous reactions

	Strong oxidising agents.
--	--------------------------

10.6. Hazardous decomposition products

	Carbon oxides.
--	----------------

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Skin corrosion/irritation	Irritating to eyes, respiratory system and skin.
Repeated or prolonged exposure	Repeated or prolonged exposure may cause dermatitis.

SECTION 12: Ecological information

SECTION 13: Disposal considerations

General information

	Dispose of as special waste in compliance with local and national regulations.
--	--

SECTION 14: Transport information

Hazard pictograms

Hazard pictograms	
-------------------	---

14.1. UN number

	UN1263
--	--------

14.2. UN proper shipping name

Proper Shipping Name	PAINT RELATED MATERIAL
----------------------	------------------------

14.3. Transport hazard class(es)

ADR/RID	3
Subsidiary risk	-
IMDG	3
Subsidiary risk	-
IATA	3
Subsidiary risk	-

14.4. Packing group

Packing group	II
---------------	----

14.5. Environmental hazards

HumiSeal Thinner 521

Revision

16

Revision date 2011-02-11

14.5. Environmental hazards

Environmental hazards	No
Marine pollutant	No

ADR/RID

Hazard ID	33
Tunnel Category	D/E

IMDG

EmS Code	F-E S-E
-----------------	---------

IATA

Packing Instruction (Cargo)	364
Maximum quantity	60 L
Packing Instruction (Passenger)	353
Maximum quantity	5 L

SECTION 15: Regulatory information**Labelling**

Symbols	Xn: Harmful. 
Risk phrases	R10 - Flammable. R20/21 - Harmful by inhalation and in contact with skin. R38 - Irritating to skin.
Safety phrases	S16 - Keep away from sources of ignition - No smoking. S25 - Avoid contact with eyes. S29 - Do not empty into drains. S36/37 - Wear suitable protective clothing and gloves. S9 - Keep container in a well-ventilated place.

SECTION 16: Other information**Other information**

Revision	This document differs from the previous version in the following areas:. 14 - ADR/RID.
Text of risk phrases in Section 3	R10 - Flammable R20/21 - Harmful by inhalation and in contact with skin. R38 - Irritating to skin.

Further information

	The information supplied in this Safety Data Sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process. The information provided relates only to the product or material specified and does not apply if used in combination with other materials. Handle and store under inert gas. This product is not properly labelled for sale or use outside the EU.
--	---

EXHIBIT 48



Printing Date 11/11/2012

SAFETY DATA SHEET (SDS)

According to 1907/2006/EC, Article 31

Version number 7

Reviewed on 11/11/2012

1 PRODUCT AND COMPANY IDENTIFICATION

Trade name: 285 Lead Free Flux Cored Solder

Relevant identified uses of the substance or mixture and uses advised against Professional use of solder

Application of the substance / the preparation: Flux cored solder

Details of the supplier of the safety data sheet

This Safety Data Sheet has been updated in accordance with the Globally Harmonized System (GHS).

Manufacturer/Supplier:

Kester

800 West Throndale Ave.

Itasca, IL 60143

Tel (630) 616-4000

Fax (630) 616-4044

Kester Components Pte Ltd

500 Chai Chee Lane

Singapore 469024

Tel: 65-64491133

Information department: SDS Coordinator (630) 616-6844

Emergency telephone number:

CHEMTREC 24-Hour Emergency Response Telephone Number : (800) 424-9300

CHEMTREC 24-Hour Emergency Response (Outside US & Canada) Telephone Number : (703) 527-3887

2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008



GHS08 Health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.



GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

Label elements

Labelling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the CLP regulation.

Hazard pictograms



GHS08

Signal word Danger

Hazard-determining components of labelling:

Rosin

Hazard statements

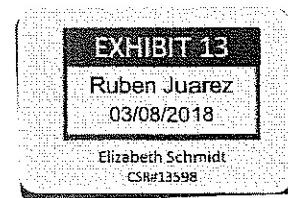
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

Precautionary statements

P285

In case of inadequate ventilation wear respiratory protection.



(Contd. on page 2)
US,

Juarez00890 619

SAFETY DATA SHEET (SDS)
According to 1907/2006/EC, Article 31

Printing Date 11/11/2012

Version number 7

Reviewed on 11/11/2012

Trade name: 285 Lead Free Flux Cored Solder

(Contd. of page 1)

- P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P352 Wash with plenty of soap and water.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard description:

WHMIS Hazard Symbols

D2B - Toxic material causing other toxic effects



Classification system:

NFPA ratings (scale 0 - 4)



Health = 1
Fire = 1
Reactivity = 0

HMIS-ratings (scale 0 - 4)

HEALTH	<input checked="" type="checkbox"/>
FIRE	<input checked="" type="checkbox"/>
REACTIVITY	<input type="checkbox"/>

Health = *1

Fire = 1

Reactivity = 0

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

3 COMPOSITION OF MIXTURE

Chemical characterization: Mixtures

Description: Mixture: consisting of the following components.

CAS No.	Description	% Range
CAS: 7440-31-5 EINECS: 231-141-8	tin	90-95%
CAS: 7440-22-4 EINECS: 231-131-3	silver	2.5-5.0%
CAS: 8050-09-7 EINECS: 232-475-7	Rosin	2.5-5.0%
CAS: 7440-50-8 EINECS: 231-159-6	copper	≤ 1.0%

Additional information:

Composition and weight percent of solder alloys varies widely and can be determined by product label.

Flux in core is typically 1-3% by weight.

This solder product does not contain any Substance of Very High Concern (SVHC) on the European Chemicals Agency (ECHA) candidate list.

4 FIRST AID MEASURES

Description of first aid measures

After inhalation: Supply fresh air; consult doctor in case of complaints.

After skin contact: Immediately wash with water and soap and rinse thoroughly.

(Contd. on page 3)

SAFETY DATA SHEET (SDS)

According to 1907/2006/EC, Article 31

Printing Date 11/11/2012

Version number 7

Reviewed on 11/11/2012

Trade name: 285 Lead Free Flux Cored Solder

(Contd. of page 2)

After eye contact: Rinse opened eye for several minutes under running water.

After swallowing: Seek immediate medical advice.

Information for doctor:

Most important symptoms and effects, both acute and delayed No further relevant information available.

Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing agents: CO₂, sand, extinguishing powder. Do not use water.

Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Carbon monoxide (CO)

Carbon dioxide (CO₂)

Aliphatic aldehydes

Advice for firefighters

Protective equipment:

Fire fighters should be fully trained and wear full protective clothing including an approved, self-contained breathing apparatus which supplies a positive air pressure within a full face-piece mask.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures Ensure adequate ventilation

Environmental precautions: Do not allow to enter sewers/ surface or ground water.

Methods and material for containment and cleaning up:

Ensure adequate ventilation.

Melted solder will solidify on cooling and can be scraped up. Use caution to avoid breathing fumes if a gas torch is used to cut up large pieces.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 HANDLING AND STORAGE

Handling:

Precautions for safe handling Prevent formation of aerosols.

Information about protection against explosions and fires: No special measures required.

Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles: Store in a cool location.

Information about storage in one common storage facility: Not required.

Further information about storage conditions:

Store in dry conditions.

Exposure to sulfur or to high humidity will tarnish solder surface.

Specific end use(s) No further relevant information available.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Additional information about design of technical systems: No further data; see item 7.

(Contd. on page 4)

US,

SAFETY DATA SHEET (SDS)
According to 1907/2006/EC, Article 31

Printing Date 11/11/2012

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Reviewed on 11/11/2012

Trade name: 285 Lead Free Flux Cored Solder

(Contd. of page 3)

Control parameters

Components with limit values that require monitoring at the workplace:

7440-31-5 tin

PEL 2 mg/m³

metal

REL 2 mg/m³

TLV 2 mg/m³

metal

7440-22-4 silver

PEL 0.01 mg/m³

metal and soluble compounds (as Ag)

REL 0.01 mg/m³

TLV 0.1 mg/m³

metal; dust and fume

8050-09-7 Rosin

TLV SEN; L

Additional information:

PEL = Permissible Exposure Limit (OSHA)

TLV= Threshold Limit Value (ACGIH)

OSHA= Occupational Safety and Health Administration

ACGIH= American Conference of Governmental Industrial Hygienists

Exposure controls

Personal protective equipment:

General protective and hygienic measures:

The usual precautionary measures for handling chemicals should be followed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Breathing equipment:

Exposure Controls: Use appropriate engineering control such as process enclosures, local exhaust ventilation to control airborne levels below recommended exposure limits.

When ventilation is not sufficient to remove airborne levels from the breathing zone, a NIOSH safety approved respirator or self-contained breathing apparatus should be worn. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.

Protection of hands:



Protective gloves

Material of gloves:

Cloth gloves

Nitrile rubber, NBR

Natural rubber, NR

Penetration time of glove material:

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:

Safety glasses



Face Shield with Safety Glasses when refilling.

US,

(Contd. on page 5)

SAFETY DATA SHEET (SDS)
According to 1907/2006/EC, Article 31

Printing Date 11/11/2012

Version number 7

Reviewed on 11/11/2012

Trade name: 285 Lead Free Flux Cored Solder

(Contd. of page 4)

9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

General Information

Appearance:

Form: Metal in wire, ribbon, or preformed shapes with a core of flux

Color: Silver grey

Odor: Mild

pH-value: Not determined.

Change in condition

Melting point/Melting range: 422 °C (792 °F)

Flash point: Undetermined.

Auto igniting: Product is not selfigniting.

Danger of explosion: Product does not present an explosion hazard.

Density: Not determined.

Solubility in / Miscibility with

Water: Not miscible or difficult to mix.

10 STABILITY AND REACTIVITY

Reactivity

Chemical stability

Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

Possibility of hazardous reactions No dangerous reactions known.

Conditions to avoid No further relevant information available.

Incompatible materials: Strong acids, strong oxidizers.

Hazardous decomposition products:

Carbon monoxide and carbon dioxide

When heated to soldering temperatures, the solvents are evaporated and rosin may be thermally degraded to liberate aliphatic aldehydes and acids.

11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity:

Primary irritant effect:

on the skin:

Irritant to skin and mucous membranes.

Possible local irritation by contact with flux or fumes.

on the eye:

Irritating effect.

Smoke during soldering can cause eye irritation.

through inhalation:

Flux fumes during soldering may cause irritation and damage of mucous membranes and respiratory system.

Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Irritant

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

(Contd. on page 6)
US

SAFETY DATA SHEET (SDS)
According to 1907/2006/EC, Article 31

Printing Date 11/11/2012

Version number 7

Reviewed on 11/11/2012

Trade name: 285 Lead Free Flux Cored Solder

(Contd. of page 5)

NTP (National Toxicology Program)

None of the ingredients is listed.

12 ECOLOGICAL INFORMATION

Toxicity

Aquatic toxicity: No further relevant information available.

Additional ecological information:

General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Danger to drinking water if even extremely small quantities leak into the ground.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Disposal must be made according to official regulations.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

14 TRANSPORT INFORMATION

UN-Number

DOT, ADN, IMDG, IATA
ADR

Not applicable
Not applicable
Not regulated

UN proper shipping name

DOT, ADR, ADN
IMDG, IATA

Not applicable
Not regulated

Transport hazard class(es)

DOT
Class

Not applicable
Not regulated.

ADR, ADN, IMDG, IATA
Class

Not applicable

Packing group

DOT, ADR, IMDG, IATA

Not applicable

Environmental hazards:

Marine pollutant:

No

Special precautions for user

Not applicable.

Transport in bulk according to Annex II of MARPOL73/78
and the IBC Code

Not applicable.

15 REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

USA The following information relates to product regulation specific to the USA.

(Contd. on page 7)
US,

SAFETY DATA SHEET (SDS)
According to 1907/2006/EC, Article 31

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Trade name: 285 Lead Free Flux Cored Solder

(Contd. of page 6)

SARA (Superfund Amendments and Reauthorization Act)

Section 355 (extremely hazardous substances):

None of the ingredient is listed.

Section 313 (Specific toxic chemical listings):

7440-22-4 silver

7440-50-8 copper

TSCA (Toxic Substances Control Act): Kester certifies that all components listed below for the subject finished product are on the TSCA Inventory of Chemical Substances and are not subject to any chemical specific regulation under TSCA Section 12(b) export notification requirements delineated at 40 CFR part 707, subpart D.

All ingredients are listed or exempt from listing.

California Proposition 65

Chemicals known to cause cancer:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity:

None of the ingredients is listed.

Carcinogenic categories

EPA (Environmental Protection Agency)

7440-22-4 silver

D

7440-50-8 copper

D

NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

CANADA:

Workplace Hazardous Materials Identification (WHMIS):

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR) and the Safety Data Sheet (SDS) contains all of the information required by the CPR.

Labelling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the CLP regulation.

Hazard pictograms



GHS08

Signal word Danger

Hazard-determining components of labelling:

Rosin

Hazard statements

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

Precautionary statements

P285 In case of inadequate ventilation wear respiratory protection.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P304+P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

P352 Wash with plenty of soap and water.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 8)

US

SAFETY DATA SHEET (SDS)
According to 1907/2006/EC, Article 31

Printing Date 11/11/2012

Version number 7

Reviewed on 11/11/2012

Trade name: 285 Lead Free Flux Cored Solder

(Contd. of page 7)

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 OTHER INFORMATION

The information contained herein is based on data considered accurate and is offered solely for information, consideration and investigation. Kester extends no warranties, makes no representations and assumes no responsibility as to the accuracy, completeness or suitability of this data for any purchaser's use. The data on this Material Safety Data Sheet relates only to this product and does not relate to use with any other material or in any process. All chemical products should be used only by, or under the direction of, technically qualified personnel who are aware of the hazards involved and the necessity for reasonable care in handling. Hazard communication regulations require that employees must be trained on how to use a Material Safety Data Sheet as a source for hazard information.

Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

* Data compared to the previous version altered.

US,

EXHIBIT 49

Material Safety Data Sheet

HUNTSMAN
Enriching lives through innovation

ARATHANE® 5750 A

1 . Product and company identification

Product name : ARATHANE® 5750 A
Material uses : Component used for the manufacture of electrical insulation parts
(M)SDS # : 00052694
Validation date : 12/11/2013.
Supplier/Manufacturer : Huntsman Advanced Materials Americas LLC
P.O. Box 4980
The Woodlands, TX 77387

Non-Emergency phone: (800) 257-5547

E-Mail: MSDS@huntsman.com

In case of emergency : Chemtrec: (800) 424-9300 or (703) 527-3887

2 . Hazards identification

Physical state : Liquid.
Odor : Aromatic.
Color : Yellow.
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview : WARNING!
FLAMMABLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. POSSIBLE DEVELOPMENTAL HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE ADVERSE DEVELOPMENTAL EFFECTS, BASED ON ANIMAL DATA.
Flammable liquid. Keep away from heat, sparks and flame. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not get on skin or clothing. Avoid contact with eyes. Avoid exposure during pregnancy. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

See toxicological information (Section 11)

GENERAL INFORMATION : Read the entire MSDS for a more thorough evaluation of the hazards.

3 . Composition/information on ingredients

Name	CAS number	%
Diphenylmethane 4,4'-diisocyanate	101-68-8	60 - 100
MDI HOMOPOLYMER (NCO>=3) (SUBSTANCE)	39310-05-9	13 - 30
Toluene	108-88-3	7 - 13
Methylenediphenyldiisocyanate (mixed isomers)	26447-40-5	3 - 7
triethyl phosphate	78-40-0	1 - 3

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4 . First aid measures

- | | |
|---------------------------|--|
| Eye contact | : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately. |
| Skin contact | : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately. |
| Inhalation | : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately. |
| Ingestion | : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately. |
| Notes to physician | : No specific treatment. Treat symptomatically. Call medical doctor or poison control center immediately if large quantities have been ingested. |

5 . Fire-fighting measures

- | | |
|---|--|
| Flash point | : Closed cup: 31°C (87.8°F) [ASTM D 93 (Pensky-Martens Closed Cup)] |
| Hazardous thermal decomposition products | : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
phosphorus oxides |
| <u>Extinguishing media</u> | |
| Suitable | : Use dry chemical, CO ₂ , water spray (fog) or foam. |
| Not suitable | : Do not use water jet. |
| Special exposure hazards | : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. |
| Special protective equipment for fire-fighters | : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |

6 . Accidental release measures

- | | |
|----------------------------------|---|
| Personal precautions | : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8). |
| Environmental precautions | : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |
| Methods for cleaning up | : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact |

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6 . Accidental release measures

information and Section 13 for waste disposal.

7 . Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure during pregnancy. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Diphenylmethane 4,4'-diisocyanate	ACGIH TLV (United States, 3/2012). TWA: 0.005 ppm 8 hours. OSHA PEL (United States, 6/2010). CEIL: 0.02 ppm CEIL: 0.2 mg/m ³
Toluene	OSHA PEL Z2 (United States, 11/2006). TWA: 200 ppm 8 hours. CEIL: 300 ppm AMP: 500 ppm 10 minutes. ACGIH TLV (United States, 3/2012). TWA: 20 ppm 8 hours.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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8 . Exposure controls/personal protection

Hygiene measures	: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Personal protection	
Respiratory	: In case of inadequate ventilation wear respiratory protection. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Hands	: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. > 8 hours (breakthrough time): Ethyl Vinyl Alcohol Laminate (EVAL), butyl rubber
Eyes	: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
Skin	: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
Environmental exposure controls	: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Appearance

Physical state	: Liquid.
Color	: Yellow.
Odor	: Aromatic.
pH	: Not available.
Boiling/condensation point	: >109°C (>228.2°F)
Melting/freezing point	: Not available.
Flash point	: Closed cup: 31°C (87.8°F) [ASTM D 93 (Pensky-Martens Closed Cup)]
Flammable limits	: Not available.
Auto-ignition temperature	: Not available.
Vapor pressure	: Not available.
Specific gravity	: Not available.
Water solubility	: Reacts with water
Partition coefficient: n-octanol/water (log Kow)	: Not available.
Viscosity	: Dynamic (room temperature): 30 mPa·s (30 cP)

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9 . Physical and chemical properties

Density : 1.2 g/cm³

Vapor density : 8.6

Evaporation rate (butyl acetate = 1) : Not available.

10 . Stability and reactivity

Chemical stability : The product is stable.

Under normal conditions of storage and use, hazardous reactions will not occur.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Materials to avoid : strong acids, strong bases, strong oxidising agents

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Test	Endpoint	Species	Result
Diphenylmethane 4,4'-diisocyanate	OECD 403 Acute Inhalation Toxicity OECD 402 Acute Dermal Toxicity OECD 401 Acute Oral Toxicity	LC50 Inhalation Dusts and mists LD50 Dermal LD50 Oral	Rat - Male, Female Rabbit - Male, Female Rat - Male	0.49 mg/l >9400 mg/kg >10000 mg/kg
MDI HOMOPOLYMER (NCO>=3) (SUBSTANCE)	OECD 403 Acute Inhalation Toxicity OECD 402 Acute Dermal Toxicity OECD 425 Acute Oral Toxicity: Up-and-Down Procedure	LC50 Inhalation Dusts and mists LD50 Dermal LD50 Oral	Rat - Male, Female Rabbit - Male, Female Rat - Female	0.49 mg/l >9400 mg/kg >5000 mg/kg
Toluene	OECD 403 Acute Inhalation Toxicity Unknown guidelines EU EC B.1 Acute Toxicity (Oral)	LC50 Inhalation Vapor LD50 Dermal LD50 Oral	Rat - Male, Female Rabbit Rat - Male	28.1 mg/l >5000 mg/kg 5580 mg/kg
Methylenediphenyldiisocyanate (mixed isomers)	OECD 403 Acute Inhalation Toxicity OECD 403 Acute Inhalation Toxicity OECD 402 Acute Dermal Toxicity No official guidelines	LC50 Inhalation Dusts and mists LC50 Inhalation Dusts and mists LD50 Dermal LD50 Oral	Rat - Male, Female Rat - Male, Female Rabbit - Male, Female Rat - Male, Female	>2.24 mg/l 0.49 mg/m ³ >9400 mg/kg >2000 mg/kg
triethyl phosphate	OECD 403 Acute Inhalation Toxicity - -	LC50 Inhalation Dusts and mists LD50 Dermal LD50 Oral	Rat - Male, Female Rabbit Rat	>8817 mg/m ³ >20000 mg/kg 1600 mg/kg

Conclusion/
Summary : Diphenylmethane 4,4'-diisocyanate Irritating to respiratory system.

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11 . Toxicological informationIrritation/Corrosion

Product/ingredient name	Test	Species	Result
Diphenylmethane 4,4'-diisocyanate	OECD 404 Acute Dermal Irritation/Corrosion OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Skin - Irritant Eyes - Non-irritant.
MDI HOMOPOLYMER (NCO>=3) (SUBSTANCE)	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Non-irritant.
Toluene	- EU OECD 405 Acute Eye Irritation/Corrosion	Rabbit Rabbit Rabbit	Skin - Irritant Skin - Irritant Eyes - Mild irritant
triethyl phosphate	OECD 404 Acute Dermal Irritation/Corrosion OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Skin - Non-irritant. Eyes - Moderate irritant

Conclusion/Summary

Skin	:	Diphenylmethane 4,4'-diisocyanate	Irritating to skin.
	:	MDI HOMOPOLYMER (NCO>=3) (SUBSTANCE)	Irritating to skin.
	:	Toluene	Irritating to skin.
	:	Methylenediphenyldiisocyanate (mixed isomers)	No additional information.
	:	triethyl phosphate	Non-irritating to the skin.
Eyes	:	Diphenylmethane 4,4'-diisocyanate	Based on the human occupational exposure data, this substance is considered as irritating to eyes.
	:	MDI HOMOPOLYMER (NCO>=3) (SUBSTANCE)	Based on the human occupational exposure data, this substance is considered as irritating to eyes.
	:	Toluene	Non-irritating to the eyes.
	:	Methylenediphenyldiisocyanate (mixed isomers)	No additional information.
	:	triethyl phosphate	Irritating to eyes.
Respiratory	:	Diphenylmethane 4,4'-diisocyanate	No additional information.
	:	MDI HOMOPOLYMER (NCO>=3) (SUBSTANCE)	No additional information.
	:	Toluene	No additional information.
	:	Methylenediphenyldiisocyanate (mixed isomers)	No additional information.
	:	triethyl phosphate	No additional information.

Sensitizer

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11 . Toxicological information

Product/ingredient name	Test	Route of exposure	Species	Result
Diphenylmethane 4,4'-diisocyanate	OECD 429 Skin Sensitization: Local Lymph Node Assay	skin	Mouse	Sensitizing
MDI HOMOPOLYMER (NCO>=3) (SUBSTANCE)	OECD 406 Skin Sensitization No official guidelines	skin	Guinea pig	Not sensitizing
Toluene	OECD 406 Skin Sensitization No official guidelines	Respiratory	Guinea pig	Sensitizing
Methylenediphenyldiisocyanate (mixed isomers)	EU EC B.6 Skin Sensitisation OECD 406 Skin Sensitization No official guidelines	skin	Guinea pig	Sensitizing
triethyl phosphate	OECD 429 Skin Sensitization: Local Lymph Node Assay	skin	Guinea pig	Not sensitizing
	OECD 429 Skin Sensitization: Local Lymph Node Assay	skin	Mouse	Sensitizing
	OECD 429 Skin Sensitization: Local Lymph Node Assay	skin	Mouse	Not sensitizing

Mutagenicity

Product/ingredient name	Test	Result
Diphenylmethane 4,4'-diisocyanate	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Negative
MDI HOMOPOLYMER (NCO>=3) (SUBSTANCE)	Experiment: In vivo Subject: Mammalian-Animal	Negative
Toluene	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Negative
Methylenediphenyldiisocyanate (mixed isomers)	Experiment: In vivo Subject: Mammalian-Animal	Negative
triethyl phosphate	Experiment: In vitro Subject: Mammalian-Animal	Negative

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11 . Toxicological information

	Metabolic activation: +/- Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic Experiment: In vivo Subject: Mammalian-Animal	Negative Negative
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**Conclusion/
Summary** : Diphenylmethane 4,4'-diisocyanate triethyl phosphate No mutagenic effect.
No mutagenic effect.

Carcinogenicity

Product/ingredient name	Test	Species	Dose	Exposure	Result/Result type
Diphenylmethane 4,4'-diisocyanate	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Rat - Male, Female	1 mg/m ³	2 years; 5 days per week	Positive - Inhalation - NOAEL
MDI HOMOPOLYMER (NCO>=3) (SUBSTANCE)	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Rat - Male, Female	1 mg/m ³	2 years; 5 days per week	Negative - Inhalation - NOAEL
Toluene	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Rat - Male, Female	4522 mg/m ³	103 weeks; 6, 5 hours per day	Negative - Inhalation - NOAEL
Methylenediphenyldiisocyanate (mixed isomers)	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Rat - Male, Female	1 mg/m ³	2 years; 5 days per week	Negative - Inhalation - NOAEL

Carcinogenic class

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Diphenylmethane 4,4'-diisocyanate Toluene	- A4	3 3	- -	- -	- -	- -

Reproductive toxicity

Product/ingredient name	Test	Species	Maternal toxicity	Fertility	Developmental effects
Toluene	OECD 416 Two-Generation Reproduction Toxicity Study	Rat - Male, Female	Positive	Negative	Positive
Methylenediphenyldiisocyanate (mixed isomers)	OECD 414 Prenatal Developmental Toxicity Study	Rat - Male, Female	Negative	Negative	Negative

**Conclusion/
Summary** :

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11 . Toxicological information

Diphenylmethane 4,4'-diisocyanate triethyl phosphate	No known significant effects or critical hazards. In accordance with column 2 of Annex VII - X of Regulation (EC) No 1907/2006, the test for this property of the substance does not need to be conducted.
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Teratogenicity

Product/ingredient name	Test	Species	Result/Result type
Diphenylmethane 4,4'-diisocyanate	OECD 414 Prenatal Developmental Toxicity Study	Rat - Female	Negative - Inhalation
MDI HOMOPOLYMER (NCO>=3) (SUBSTANCE)	OECD 414 Prenatal Developmental Toxicity Study	Rat - Female	Negative - Inhalation
Toluene	EPA CFR	Rat - Female	Negative - Inhalation
Methylenediphenyldiisocyanate (mixed isomers)	OECD 414 Prenatal Developmental Toxicity Study	Rat - Female	Negative - Inhalation
triethyl phosphate	OECD 414 Prenatal Developmental Toxicity Study	Rat	Negative - Oral

Conclusion/Summary : Diphenylmethane 4,4'-diisocyanate triethyl phosphate No known significant effects or critical hazards.
No known significant effects or critical hazards.

Potential acute health effects

- Inhalation** : Irritating to respiratory system. May cause sensitization by inhalation.
Ingestion : No known significant effects or critical hazards.
Skin contact : Irritating to skin. May cause sensitization by skin contact.
Eye contact : Irritating to eyes.

Potential chronic health effects

Product/ingredient name	Test	Endpoint	Species	Result
MDI HOMOPOLYMER (NCO>=3) (SUBSTANCE)	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies EU	Chronic NOEC Inhalation Dusts and mists	Rat - Male, Female	0.2 mg/m³
Toluene	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies EU	Sub-chronic NOAEL Oral Chronic LOEC Inhalation Vapor	Rat - Male, Female	625 mg/kg
Methylenediphenyldiisocyanate (mixed isomers)	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies EU	Chronic NOEC Inhalation Dusts and mists	Rat - Male, Female	600 ppm
triethyl phosphate	-	Sub-acute NOAEL Oral Sub-chronic NOEC	Rat - Male, Female Rat - Male	1000 mg/kg 366 mg/m³

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		Inhalation Dusts and mists		
General	:	Contains material that can cause target organ damage. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.		
Target organs	:	Contains material which causes damage to the following organs: upper respiratory tract. Contains material which may cause damage to the following organs: kidneys, the nervous system, liver, brain, central nervous system (CNS).		
Carcinogenicity	:	No known significant effects or critical hazards.		
Mutagenicity	:	No known significant effects or critical hazards.		
Teratogenicity	:	No known significant effects or critical hazards.		
Developmental effects	:	Contains material which may cause developmental abnormalities, based on animal data.		
Fertility effects	:	No known significant effects or critical hazards.		
Medical conditions aggravated by over-exposure				
Pre-existing respiratory and skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.				

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name	Test	Endpoint	Exposure	Species	Result	
Diphenylmethane 4,4'-diisocyanate	OECD 202 Daphnia sp. Acute Immobilisation Test OECD 203 Fish, Acute Toxicity Test OECD 211 Daphnia Magna Reproduction Test	Acute Acute Chronic	EC50 LC50 NOEC	24 hours Static 96 hours Static 21 days Semi-static	Daphnia Fish Daphnia	>1000 mg/l >1000 mg/l >10 mg/l
MDI HOMOPOLYMER (NCO>=3) (SUBSTANCE)	OECD 201 Alga, Growth Inhibition Test OECD 201 Alga, Growth Inhibition Test OECD 209 Activated Sludge, Respiration Inhibition Test OECD 202 Daphnia sp. Acute Immobilisation Test OECD 203 Fish, Acute Toxicity Test OECD 211 Daphnia Magna Reproduction Test	Chronic Acute Acute Acute Acute	NOEC EC50 EC50 EC50 LC50	72 hours Static 72 hours Static 3 hours Static 24 hours Static 96 hours Static 21 days Semi-static	Algae Algae Bacteria Daphnia Fish	1640 mg/l >1640 mg/l >100 mg/l >1000 mg/l >1000 mg/l >10 mg/l
Toluene	OECD 201 Alga, Growth Inhibition Test EPA CFR	Chronic Acute	NOEC EC50	72 hours Static 48 hours Renewal	Algae Daphnia	1640 mg/l 3.78 mg/l

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12 . Ecological information

Methylenediphenyldiisocyanate (mixed isomers)	-	Acute	LC50	96 hours	Fish	5.5	mg/l
	Unknown guidelines	Chronic	NOEC	Flow-through 40 days	Fish	1.39	mg/l
	EPA CFR	Chronic	NOEC	Flow-through 7 days	Daphnia	0.74	mg/l
	OECD 201 Alga, Growth Inhibition Test	Acute	EC50	Renewal 72 hours	Algae	>1640	mg/l
	OECD 209 Activated Sludge, Respiration Inhibition Test	Acute	EC50	Static 3 hours	Bacteria	>100	mg/l
	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute	EC50	Static	Daphnia	>1000	mg/l
	OECD 203 Fish, Acute Toxicity Test	Acute	LC50	96 hours	Fish	>1000	mg/l
	OECD 211 <i>Daphnia Magna</i> Reproduction Test	Chronic	NOEC	21 days	Daphnia	>10	mg/l
	OECD 201 Alga, Growth Inhibition Test	Chronic	NOEC	72 hours	Algae	1640	mg/l
	-	Acute	EC50	72 hours	Algae	901	mg/l
triethyl phosphate	EPA OPPTS	Acute	LC50	96 hours	Daphnia	>100	mg/l
	-	Acute	LC50	96 hours	Fish	>100	mg/l
	EPA OPPTS	Acute	LC50	96 hours	Fish	>100	mg/l
	-	Chronic	EC10	30 minutes	Bacteria	2985	mg/l
	OECD 211 <i>Daphnia Magna</i> Reproduction Test	Chronic	NOEC	21 days	Daphnia	31.6	mg/l

Conclusion/Summary : triethyl phosphate Not toxic or harmful to aquatic organisms.

Persistence and degradability

Product/ingredient name	Test	Period	Result
Diphenylmethane 4,4'-diisocyanate	OECD 302C Inherent Biodegradability: Modified MITI Test (II)	28 days	0 %
MDI HOMOPOLYMER (NCO>=3) (SUBSTANCE)	OECD 302C Inherent Biodegradability: Modified MITI Test (II)	28 days	0 %
Toluene	ASTM	5 days	81 %
Methylenediphenyldiisocyanate (mixed isomers)	OECD 302C Inherent Biodegradability: Modified MITI Test (II)	28 days	0 %
triethyl phosphate	EPA OPPTS 302B Inherent Biodegradability: Zahn-Wellens/EMPA Test	28 days	98 %
	OECD 301C Ready Biodegradability - Modified MITI Test (I)	28 days	0 %

Conclusion/Summary : Diphenylmethane 4,4'-diisocyanate Not biodegradable
triethyl phosphate Inherently biodegradable

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12 . Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Diphenylmethane 4,4'-diisocyanate	Fresh water 0.83 days	-	Not readily
MDI HOMOPOLYMER (NCO>=3) (SUBSTANCE)	-	-	Not readily
Toluene	-	-	Readily
Methylenediphenyldiisocyanate (mixed isomers)	-	-	Not readily
triethyl phosphate	Fresh water 2007.5 days	-	Not readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Diphenylmethane 4,4'-diisocyanate	4.51	200	low
MDI HOMOPOLYMER (NCO>=3) (SUBSTANCE)	8.56	200	low
Toluene	2.73	-	low
Methylenediphenyldiisocyanate (mixed isomers)	4.51	439	low
triethyl phosphate	1.11	0.5 to 0.8	low

Other adverse effects : No known significant effects or critical hazards.

Other ecological information

- BOD5** : Not Determined
- COD** : Not Determined
- TOC** : Not Determined

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

14 . Transport information

Proper shipping name

- DOT** : RESIN SOLUTION
- TDG** : RESIN SOLUTION
- IMDG** : RESIN SOLUTION
- IATA** : RESIN SOLUTION

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14 . Transport information

Regulatory information	UN number	Classes	PG*	Label	Additional information
DOT Classification	UN1866	3	III		Reportable quantity 8234.5 lbs / 3738.5 kg [823 gal / 3115.4 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
TDG Classification	UN1866	3	III		-
IMDG Class	UN1866	3	III		Emergency schedules (EmS) F-E, _S-E_
IATA-DGR Class	UN1866	3	III		Passenger and Cargo Aircraft Quantity limitation: 60 L Packaging instructions: 355 Cargo Aircraft Only Quantity limitation: 220 L Packaging instructions: 366

PG* : Packing group

15 . Regulatory information

United States

- HCS Classification : Flammable liquid
Irritating material
Sensitizing material
Target organ effects
- U.S. Federal regulations
- TSCA 8(b) inventory : **United States inventory (TSCA 8b):** All components are listed or exempted.
- TSCA 5(a)2 final significant new use rule (SNUR) : No ingredients listed.
- TSCA 5(e) substance consent order : No ingredients listed.
- TSCA 12(b) export notification : No ingredients listed.

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15 . Regulatory information

SARA 311/312 : Fire hazard
Immediate (acute) health hazard
Delayed (chronic) health hazard

<u>Product name</u>	<u>CAS number</u>	<u>Concentration %</u>
Clean Air Act Section 112 : Diphenylmethane 4,4'-diisocyanate (b) Hazardous Air Pollutants (HAPs) toluene	101-68-8	60.72 8

Clean Air Act - Ozone Depleting Substances (ODS) : EPCRA Section 313 (40 CFR 372) CERCLA (Comprehensive Environmental Response, Compensation and Liability Act): 4,4-Methylene diphenyl diisocyanate (CAS 101-68-8) has a 5,000 lb. RQ (reportable quantity). Any spill or release above the RQ must be reported to the National Response Center (800-424-8802).

This product does not contain nor is it manufactured with ozone depleting substances.

<u>SARA 313</u>	<u>Product name</u>	<u>CAS number</u>	<u>Concentration %</u>
Form R - Reporting requirements	: Diphenylmethane 4,4'-diisocyanate	101-68-8	60.72
	Toluene	108-88-3	7.9928

CERCLA Hazardous substances

Components	Concentration %	Section 304 CERCLA Hazardous Substance	CERCLA Reportable Quantity (Lbs)	Product Reportable Quantity (Lbs)
Diphenylmethane 4,4'-diisocyanate	60.72	Listed	5000	8235
Toluene	7.9928	Listed	1000	12511

State regulations

PENNSYLVANIA - RTK : Diphenylmethane 4,4'-diisocyanate, toluene

California Prop 65 : **WARNING:** This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient name Cancer Reproductive
Toluene No. Yes.

International regulations

Canada

WHMIS (Canada) : Class B-2: Flammable liquid
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

CEPA DSL : All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

ARATHANE® 5750 A

15 . Regulatory information

International lists

- : Australia inventory (AICS): All components are listed or exempted.
- China inventory (IECSC): All components are listed or exempted.
- Japan inventory: All components are listed or exempted.
- Korea inventory: All components are listed or exempted.
- Malaysia Inventory (EHS Register): Not determined.
- New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
- Philippines Inventory (PICCS): All components are listed or exempted.
- Taiwan inventory (CSNN): Not determined.

16 . Other information

Label requirements

- : FLAMMABLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. POSSIBLE DEVELOPMENTAL HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE ADVERSE DEVELOPMENTAL EFFECTS, BASED ON ANIMAL DATA.

Hazardous Material Information System (U.S.A.)

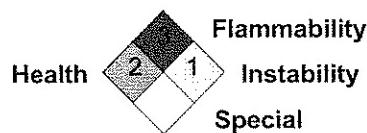
:

Health	2
Flammability	3
Physical hazards	1
Personal protection	

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

:



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Date of previous issue : 8/08/2008

Version : 3

☒ Indicates information that has changed from previously issued version.

Notice to reader

While the information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS

ARATHANE® 5750 A

16 . Other information

THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE. NO PART OF THIS DATA SHEET MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM, OR BY ANY MEANS, WITHOUT PERMISSION IN WRITING FROM HUNTSMAN. ALL REQUESTS FOR PERMISSION TO REPRODUCE MATERIAL FROM THIS DATA SHEET SHOULD BE DIRECTED TO HUNTSMAN, MANAGER, PRODUCT SAFETY AT THE ABOVE ADDRESS.

Juarez 898-913 M ... THANE 5750 A.p Open with



Material Safety Data Sheet

HUNTSMAN
Enriching lives through innovation

ARATHANE® 5750 A

1. Product and company identification

Product name	: ARATHANE® 5750 A
Material uses	: Component used for the manufacture of electrical insulation parts
(M)SDS #	: 00052694
Validation date	: 12/11/2013.
Supplier/Manufacturer	: Huntsman Advanced Materials Americas LLC P.O. Box 4980 The Woodlands, TX 77387
	Non-Emergency phone: (800) 257-5547
	E-Mail:

In case of emergency : Chemtrec: (800) 424-9300 or (703) 527-3887

2. Hazards identification

Physical state	: Liquid.
Odor	: Aromatic.
Color	: Yellow.
OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview	: WARNING! FLAMMABLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. POSSIBLE DEVELOPMENTAL HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE ADVERSE DEVELOPMENTAL EFFECTS, BASED ON ANIMAL DATA. Flammable liquid. Keep away from heat, sparks and flame. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not get on skin or clothing. Avoid contact with eyes. Avoid exposure during pregnancy. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

See toxicological information (Section 11)

GENERAL INFORMATION : Read the entire MSDS for a more thorough evaluation of the hazards.

3. Composition/information on ingredients

Name	CAS number	%
Diphenylmethane 4,4'-diisocyanate	101-68-8	60 - 100
MDI HOMOPOLYMER (NCO>=3) (SUBSTANCE)	39310-05-9	13 - 30
Toluene	108-88-3	7 - 13
Methylenediphenyldiisocyanate (mixed isomers)	26447-40-5	3 - 7
triethyl phosphate	78-40-0	1 - 3

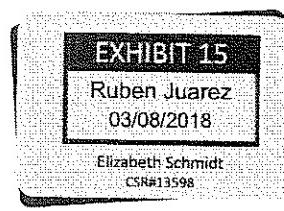


EXHIBIT 50

Material Safety Data Sheet

HUNTSMAN
Enriching lives through innovation

ARATHANE® 5750 B(LV)

1. Product and company identification

Product name : ARATHANE® 5750 B(LV)
Material uses : Component used for the manufacture of electrical insulation parts
(M)SDS # : 00055441
Validation date : 12/11/2013.
Supplier/Manufacturer : Huntsman Advanced Materials Americas LLC
P.O. Box 4980
The Woodlands, TX 77387

Non-Emergency phone: (800) 257-5547

E-Mail: MSDS@huntsman.com

In case of emergency : Chemtrec: (800) 424-9300 or (703) 527-3887

2. Hazards identification

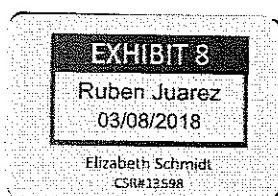
Physical state : Liquid.
Odor : Aromatic.
Color : Amber.
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview : DANGER!
FLAMMABLE LIQUID AND VAPOR. CAUSES EYE BURNS. CAUSES RESPIRATORY TRACT AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. POSSIBLE DEVELOPMENTAL HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE ADVERSE DEVELOPMENTAL EFFECTS, BASED ON ANIMAL DATA.
Flammable liquid. Keep away from heat, sparks and flame. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not get in eyes or on skin or clothing. Avoid exposure during pregnancy. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

See toxicological information (Section 11)

GENERAL INFORMATION : Read the entire MSDS for a more thorough evaluation of the hazards.

3. Composition/information on ingredients

Name	CAS number	%
HYDROXYLATED POLYBUTADIENE	69102-90-5	60 - 100
methyl ethyl ketone	78-93-3	7 - 13
Toluene	108-88-3	7 - 13
1,1'-phenyliminodipropan-2-ol	3077-13-2	3 - 7



ARATHANE® 5750 B(LV)

4 . First aid measures

- | | |
|---------------------------|--|
| Eye contact | : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately. |
| Skin contact | : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately. |
| Inhalation | : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately. |
| Ingestion | : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately. |
| Notes to physician | : Symptomatic and supportive therapy as needed. Following severe exposure medical follow-up should be monitored for at least 48 hours. |

5 . Fire-fighting measures

- | | |
|---|--|
| Flash point | : Closed cup: 17°C (62.6°F) [Tagliabue.] |
| Hazardous thermal decomposition products | : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides |
| <u>Extinguishing media</u> | |
| Suitable | : Use dry chemical, CO ₂ , water spray (fog) or foam. |
| Not suitable | : Do not use water jet. |
| Special exposure hazards | : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. |
| Special protective equipment for fire-fighters | : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |

6 . Accidental release measures

- | | |
|----------------------------------|--|
| Personal precautions | : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8). |
| Environmental precautions | : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |
| Methods for cleaning up | : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal. |

ARATHANE® 5750 B(LV)

7 . Handling and storage

- Handling**
- : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure during pregnancy. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage**
- : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
methyl ethyl ketone	ACGIH TLV (United States, 3/2012). TWA: 200 ppm 8 hours. TWA: 590 mg/m³ 8 hours. STEL: 300 ppm 15 minutes. STEL: 885 mg/m³ 15 minutes. OSHA PEL (United States, 6/2010). TWA: 200 ppm 8 hours. TWA: 590 mg/m³ 8 hours.
Toluene	OSHA PEL Z2 (United States, 11/2006). TWA: 200 ppm 8 hours. CEIL: 300 ppm AMP: 500 ppm 10 minutes. ACGIH TLV (United States, 3/2012). TWA: 20 ppm 8 hours.

- Recommended monitoring procedures**
- : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- Engineering measures**
- : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

ARATHANE® 5750 B(LV)

8 . Exposure controls/personal protection

Hygiene measures	: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
<u>Personal protection</u>	
Respiratory	: In case of inadequate ventilation wear respiratory protection. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Hands	: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. > 8 hours (breakthrough time): Ethyl Vinyl Alcohol Laminate (EVAL), butyl rubber
Eyes	: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
Skin	: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
Environmental exposure controls	: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Appearance

Physical state	: Liquid.
Color	: Amber.
Odor	: Aromatic.
pH	: Not available.
Boiling/condensation point	: 79°C (174.2°F)
Melting/freezing point	: Not available.
Flash point	: Closed cup: 17°C (62.6°F) [Tagliabue.]
Flammable limits	: Not available.
Auto-ignition temperature	: Not available.
Vapor pressure	: Not available.
Specific gravity	: 0.92
Water solubility	: partially soluble
Partition coefficient: n-octanol/water (log Kow)	: Not available.

ARATHANE® 5750 B(LV)

9 . Physical and chemical properties

Viscosity	: Dynamic (room temperature): 1000 mPa·s (1000 cP)
Density	: 0.92 g/cm³
Vapor density	: Not available.
Evaporation rate (butyl acetate = 1)	: Not available.

10 . Stability and reactivity

Chemical stability	: The product is stable. Under normal conditions of storage and use, hazardous reactions will not occur.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Materials to avoid	: strong acids, strong bases, strong oxidising agents
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Test	Endpoint	Species	Result
HYDROXYLATED POLYBUTADIENE	-	LD50 Oral	Rat	>10000 mg/kg
methyl ethyl ketone	-	LC50 Inhalation Vapor	Rat	34.5 mg/l
	-	LD50 Dermal	Rabbit	>5000 mg/kg
	-	LD50 Oral	Rat	2740 mg/kg
Toluene	OECD 403 Acute Inhalation Toxicity Unknown guidelines	LC50 Inhalation Vapor	Rat - Male, Female	28.1 mg/l
	EU EC B.1 Acute Toxicity (Oral)	LD50 Dermal	Rabbit	>5000 mg/kg
		LD50 Oral	Rat - Male	5580 mg/kg
1,1'-phenyliminodipropan-2-ol	-	LD50 Dermal	Rabbit	>2000 mg/kg
	-	LD50 Oral	Rat	3800 mg/kg

Irritation/Corrosion

Product/ingredient name	Test	Species	Result
methyl ethyl ketone	-	Rabbit	Skin - Mild irritant
	-	Rabbit	Eyes - Irritant
Toluene	EU	Rabbit	Skin - Irritant
	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Mild irritant
1,1'-phenyliminodipropan-2-ol	-	Not known	Eyes - Severe irritant
	-	Not known	Skin - Mild irritant

**Conclusion/
Summary**

Skin :

ARATHANE® 5750 B(LV)

11 . Toxicological information

	HYDROXYLATED POLYBUTADIENE methyl ethyl ketone Toluene 1,1'- phenyliminodipropan-2-ol	No additional information. Slightly irritating to the skin. Irritating to skin. Slightly irritating to the skin.
Eyes	: HYDROXYLATED POLYBUTADIENE methyl ethyl ketone Toluene 1,1'- phenyliminodipropan-2-ol	No additional information. Irritating to eyes. Non-irritating to the eyes. Severely irritating to eyes.
Respiratory	: HYDROXYLATED POLYBUTADIENE methyl ethyl ketone Toluene 1,1'- phenyliminodipropan-2-ol	No additional information. No additional information. No additional information. No additional information.

Sensitizer

Product/ingredient name	Test	Route of exposure	Species	Result
HYDROXYLATED POLYBUTADIENE Toluene	- EU EC B.6 Skin Sensitisation	skin skin	Guinea pig Guinea pig	Not sensitizing Not sensitizing

Mutagenicity

Product/ingredient name	Test	Result
Toluene	Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic Metabolic activation: +/- Experiment: In vivo Subject: Mammalian-Animal	Negative
		Negative

Carcinogenicity

Product/ingredient name	Test	Species	Dose	Exposure	Result/Result type
Toluene	OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies	Rat - Male, Female	4522 mg/m³	103 weeks; 6. 5 hours per day	Negative - Inhalation - NOAEL

Carcinogenic class

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Toluene	A4	3	-	-	-	-

Reproductive toxicity

ARATHANE® 5750 B(LV)

11 . Toxicological information

Product/ingredient name	Test	Species	Maternal toxicity	Fertility	Developmental effects
Toluene	OECD 416 Two-Generation Reproduction Toxicity Study	Rat - Male, Female	Positive	Negative	Positive

Teratogenicity

Product/ingredient name	Test	Species	Result/Result type
Toluene	EPA CFR	Rat - Female	Negative - Inhalation

Potential acute health effects

- Inhalation** : Irritating to respiratory system.
- Ingestion** : May cause burns to mouth, throat and stomach.
- Skin contact** : Irritating to skin. May cause sensitization by skin contact.
- Eye contact** : Corrosive to eyes. Causes burns.

Potential chronic health effects

Product/ingredient name	Test	Endpoint	Species	Result
Toluene	EU OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Sub-chronic NOAEL Oral Chronic LOEC Inhalation Vapor	Rat - Male, Female Rat - Male, Female	625 mg/kg 600 ppm

General : Contains material that can cause target organ damage. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Target organs : Contains material which may cause damage to the following organs: kidneys, the nervous system, liver, brain, gastrointestinal tract, central nervous system (CNS).

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : Contains material which may cause developmental abnormalities, based on animal data.

Fertility effects : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure

Pre-existing skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

ARATHANE® 5750 B(LV)

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name	Test	Endpoint	Exposure	Species	Result
methyl ethyl ketone Toluene	-	Acute EC50	48 hours	Daphnia	<520 mg/l
		Acute LC50	96 hours	Fish	3200 mg/l
		Acute LC50	96 hours	Fish	4467 mg/l
		Acute LC50	96 hours	Fish	5600 mg/l
		Acute EC50	48 hours	Daphnia	3.78 mg/l
	-	Acute LC50	96 hours	Fish	5.5 mg/l
	Unknown guidelines	Chronic NOEC	Flow-through 40 days	Fish	1.39 mg/l
	EPA CFR	Chronic NOEC	Flow-through 7 days	Daphnia	0.74 mg/l
			Renewal		

Persistence and degradability

Product/ingredient name	Test	Period	Result
methyl ethyl ketone	-	28 days	>60 %
Toluene	ASTM	5 days	81 %
Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
methyl ethyl ketone	-	-	Readily
Toluene	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
methyl ethyl ketone	0.29	1	low
Toluene	2.73	-	low

Other adverse effects : No known significant effects or critical hazards.

Other ecological information

- BOD₅ : Not Determined
- COD : Not Determined
- TOC : Not Determined

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues.

ARATHANE® 5750 B(LV)

13 . Disposal considerations

Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

14 . Transport information

Proper shipping name

DOT : RESIN SOLUTION

TDG : RESIN SOLUTION

IMDG : RESIN SOLUTION

IATA : RESIN SOLUTION

Regulatory information	UN number	Classes	PG*	Label	Additional information
DOT Classification	UN1866	3	II		<u>Reportable quantity</u> 11491.4 lbs / 5217.1 kg [1498.1 gal / 5670.8 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
TDG Classification	UN1866	3	II		-
IMDG Class	UN1866	3	II		<u>Emergency schedules (EmS)</u> F-E, S-E
IATA-DGR Class	UN1866	3	II		<u>Passenger and Cargo Aircraft</u> Quantity limitation: 5 L Packaging instructions: 353 <u>Cargo Aircraft Only</u> Quantity limitation: 60 L Packaging instructions: 364

PG* : Packing group

ARATHANE® 5750 B(LV)

15 . Regulatory information

United States

HCS Classification : Flammable liquid
Corrosive material
Sensitizing material
Target organ effects

U.S. Federal regulations

TSCA 8(b) inventory : United States inventory (TSCA 8b): All components are listed or exempted.
TSCA 5(a)2 final significant new use rule (SNUR) : No ingredients listed.

TSCA 5(e) substance consent order : No ingredients listed.

TSCA 12(b) export notification : No ingredients listed.

SARA 311/312 : Fire hazard
Immediate (acute) health hazard
Delayed (chronic) health hazard

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration %</u>
Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)	: toluene		8.71

Clean Air Act - Ozone Depleting Substances (ODS) : This product does not contain nor is it manufactured with ozone depleting substances.

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration %</u>
SARA 313 Form R - Reporting requirements	: Toluene	108-88-3	8.7022

CERCLA Hazardous substances :

Components	Concentration %	Section 304 CERCLA Hazardous Substance	CERCLA Reportable Quantity (Lbs)	Product Reportable Quantity (Lbs)
methyl ethyl ketone	8.71	Listed	5000	57405
Toluene	8.70216282	Listed	1000	11491

State regulations

PENNSYLVANIA - RTK : methyl ethyl ketone, toluene

California Prop 65 : **WARNING:** This product contains less than 0.1% of a chemical known to the State of California to cause cancer.
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

<u>Ingredient name</u>	<u>Cancer</u>	<u>Reproductive</u>
------------------------	---------------	---------------------

ARATHANE® 5750 B(LV)

15 . Regulatory information

Toluene	No.	Yes.
4-vinylcyclohexene	Yes.	Yes.
Ethylbenzene	Yes.	No.
Benzene	Yes.	Yes.
Methanol	No.	Yes.
1,3-butadiene	Yes.	Yes.

International regulations

Canada

- WHMIS (Canada) : Class B-2: Flammable liquid
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

- CEPA DSL : All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International lists

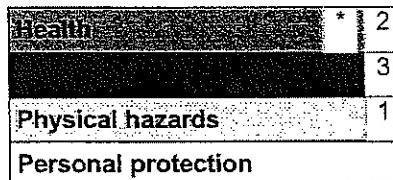
- : Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): Not determined.

16 . Other information

Label requirements

- : FLAMMABLE LIQUID AND VAPOR. CAUSES EYE BURNS. CAUSES RESPIRATORY TRACT AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. POSSIBLE DEVELOPMENTAL HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE ADVERSE DEVELOPMENTAL EFFECTS, BASED ON ANIMAL DATA.

Hazardous Material Information System (U.S.A.)



The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



Date of printing : 12/11/2013.

Date of issue : 12/11/2013.

Date of previous issue : 8/12/2008

12/11/2013.

00055441

Juarez00924 656
11/12

ARATHANE® 5750 B(LV)

16 . Other information

Version : 3

Indicates information that has changed from previously issued version.

Notice to reader

While the information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE. NO PART OF THIS DATA SHEET MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM, OR BY ANY MEANS, WITHOUT PERMISSION IN WRITING FROM HUNTSMAN. ALL REQUESTS FOR PERMISSION TO REPRODUCE MATERIAL FROM THIS DATA SHEET SHOULD BE DIRECTED TO HUNTSMAN, MANAGER, PRODUCT SAFETY AT THE ABOVE ADDRESS.

EXHIBIT 51

HUNTSMAN

Advanced Materials
Electrical Insulation Materials

DATA SHEET

Arathane® 5750-A/B (LV)

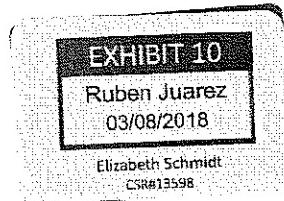
Urethane Conformal Coating

General Arathane 5750-A/B (LV) is a translucent, soft, repairable, two-component urethane system designed specifically for insulating printed circuit boards and electronic components.

Arathane 5750-A/B (LV) exhibits excellent reversion resistance under heat and high humidity conditions. As a cured coating, this material displays very low outgassing properties critical for applications in outer space and high vacuum environments.

Applications Protective coating for printed wiring boards
Dip, spray, and spread applications

Advantages Low outgassing
Repairable
Low modulus
Mil spec MIL-I-46058C approved
IPC CC 830 Amendment 1 Type UR class 3 approved



Typical Properties*	
Arathane 5750 A	
Viscosity, cPs	50
Specific gravity, g/cm ³	1.21
Flash point, open cup, °C	7
Percent solids	90 ± 3
As supplied form	Amber Liquid
Arathane 5750 B (LV)	
Viscosity, cPs	600
Specific gravity, g/cm ³	0.92
Flash point, open cup, °C	17
Percent solids	82 ± 3
As supplied form	Translucent Liquid

* Typical properties are based on Huntsman's test methods. Copies are available upon request.

Packaging & Storage	Arathane 5750-A/B (LV) are flammable liquids. These materials are moisture sensitive and should be stored in a dry place and, whenever possible, in the tightly closed original containers at 25°–40°C. Under these conditions, shelf life will be 6 months from the day of shipping. Partial containers should be resealed using dry nitrogen or argon. Contact Customer Service for packaging information.
--------------------------------	--

System Preparation	The printed circuit board or electronic circuitry should be clean and free of grease, dirt, or other contaminants. Although solvent cleaning is generally sufficient, if excess flux is evident, techniques such as vapor degreasing may produce better cleaning. Arathane 5750 A/B (LV) may be sprayed or applied by dipping. For Teflon™ coated wires and other Teflon™ surfaces, abrade with non-chlorinated steel wool and etch with sodium before applying customized adhesion agents or primers. Allow all coated surfaces to dry completely prior to applying Arathane 5750 A/B (LV). Exposure of Part A to low temperatures for prolonged periods may cause crystallization. Part A must be reliquified by heating to 50°C (120°F) maximum. DANGER! Do Not heat above 50°C! Extreme Explosion and Fire Hazard. Heat Part A until clear amber solution is achieved. Remove container from oven. Do not disturb contents. Allow to cool to 25–40°C in a controlled environment; do not force cool. Measure height of the precipitate from outside of bottle. Do not use if level of precipitate is above 3/8 inches (0.6 cm), or if liquid remains cloudy or contains gelled particles. Contact our Customer Service Department with lot number, date received and condition of bottle. Material is ready for use if level of precipitate is below 3/8 inches. Do not agitate. Slowly decant clear resin out of the bottle without disturbing the precipitate. Enough material has been packaged to allow for any precipitate and to assure sufficient Part A. For best results, filter Part A through nylon tricot, 10-25 micron size.
---------------------------	---

Use entire bottle so remaining material will not be contaminated with moisture. If this is not possible, any remaining material must be well blanketed with dry nitrogen or argon and the cap tightened securely. Store at 25-40°C for best long-term stability.

Mixing	Container should be plastic, glass, or metal. Paper and wooden containers or utensils are not recommended because of high moisture content. Weigh Part B into container first. Add Part A to container. (Do not use Part A if precipitate level is greater than 3/8 inches.) Slow machine mixing or hand stirring will minimize air entrapment. Complete and thorough mixing of Parts A and B is essential for optimum end properties. A brief vacuum may be applied to remove bubbles; however, some solvent will also be removed. Vacuum should be equipped with solvent trap to prevent damage to pump.
---------------	---

Mix ratios	Parts by weight		
Arathane 5750 A	18		
Arathane 5750 B (L V)	100		
Processing			
Initial viscosity, cPs	550		
Pot life at 25°C (100g), hours	2		
Recommended cure times*			
Temp., °C	Gelation (min)	Tack free (hours)	Full cure (hours)
25	120	24	7 days
65	45	2	9
100	25	1.5	4
125	15	1	2

* Above data was generated on two coatings of 1.5 mil (3.8×10^{-2} mm) each, dip-applied on epoxy laminate printed circuit boards. High component density boards may require slightly longer cure schedules. Maximum insulating resistance, interfacial adhesion, and protection from corrosion are obtained with heat curing.

Spraying

Some spray systems are able to apply the high-solids Arathane 5750 A/B (LV) as received to provide up to 8 mils thickness per pass.

For most conventional spray systems, a viscosity of 100-250 cP is desired. To dilute Arathane 5750 A/B (LV) for optimum spraying viscosity, use 5750 Thinner.

Suggested procedure for reducing viscosity of Arathane 5750 A/B (LV):

- To 100 pbw of Arathane 5750 B (LV) add 20 pbw of 5750 Thinner, mix well.
- To above mixture add 18 pbw of Arathane 5750 A, mix well.

Spray equipment manufacturers:

- Zicon, Mount Vernon, NY – airless inert carrier system
- Binks, Franklin Park, IL – conventional air system
- DeVilbiss, Toledo, OH – conventional air system

Dipping

Arathane 5750 A/B (LV) must be thinned with 5750 Thinner to control coating thickness. Coating thickness depends upon amount of solvent added to reduce viscosity and dipping rate. To achieve a one to one and one-half (1 - 1.5) mil thickness (2.5-3.8 x 10-2mm) coat per dip, reduce mixed viscosity to approximately 100 cPs. (Refer to previous recommendations for reducing viscosity).

Allow mixture to stand 15-30 minutes for bubbles to dissipate. A suggested solvent blend is recommended above. Adjust dipping rate to achieve desired thickness. This allows for complete wetting of all surfaces and minimizes run-off during cure.

Multiple applications

Two or more coats must be applied for optimum protection of parts. Allow enough time at curing temperature for each application to gel. Allow solvent to escape at ambient temperatures for 15-30 minutes prior to elevated temperature curing. This will minimize bubble entrapment. An alternative to air drying or curing between layers is to place board in a 15-15mm Hg Vacuum for 5-10 minutes for a dense, bubble-free coating.

Removal

Note: Cured Arathane 5750 A/B (LV) conformal coating may be removed from the printed circuit board using the following mechanical or chemical methods.

Mechanical removal

Due to the soft, flexible nature of cured Arathane 5750 A/B (LV), it may be easily cut with a sharp knife and then scraped or peeled from component leads, solder pads, and devices. Desolder and remove components, lightly sand down rough edges of intact coating, and wipe repair area clean with fresh isopropyl alcohol. Allow to dry 15 minutes. Replace component and solder in place. Wipe clean all solder flux with cloth dipped in isopropyl alcohol and allow to dry at least 15 minutes at 80°C before recoating.

Mix fresh Arathane 5750 A/B (LV) per instructions and apply to repair area with a clean, dry, acid brush or equivalent, making sure that fresh coating overlaps the intact coating. The repaired board may be put back into service after a 4 hour cure at 100°C (or alternative cure schedule).

Note: This procedure is not advised for other than field or temporary repair. Using a sharp knife to scrape the coating may also cause damage to the printed circuit board, circuitry, or other components.

The cured coating may be burned through directly with a soldering iron if only the solder joints are involved. Any coating on the leads may be easily sliced with a razor knife to facilitate part removal. Remove the burned residue and sand smooth rough burned edges of intact coating. Wipe away debris and solder new part in place. Remove dirt/resin flux with clean cloth dipped in isopropyl alcohol. Dry for 30 minutes at 65–80°C before recoating. Mix fresh Arathane 5750 A/B (LV) and apply a thin coat over repair area. Make sure to overlap original coating. Cure 4 hours at 100°C (or see alternative cure schedules).

Note: Toxic gases from burning cured urethane systems may be evolved. Perform this procedure only in well-ventilated areas.

Chemical removal	Use our Arathane 5750 Stripper for selective or total removal of cured compound. Important: Laboratory tests indicate that if suggested procedures are followed, there will be little or no adverse effects to the printed circuit board or components. However, since each application is different, users should test a representative board that has been coated and fully cured to determine deleterious effects of stripper.
Localized chemical removal	Prepare printed circuit board by masking off area to remain intact. If possible, dam up repair area beyond component level to prevent 5750 Stripper from spreading to unwanted areas. Using an acid brush, apply generous amounts of 5750 Stripper over components in repair area. Do not allow to dry. Keep applying stripper until coating starts to swell and flake off (approximately 5–10 minutes). While keeping repair area saturated, periodically brush away loosened coating. If necessary, a blunt tool may be used to remove thick sections of coating. After 20 minutes exposure to stripper, drain board and allow to dry. Scrape away any loose coating close to or under components. If further cleaning is necessary, apply fresh stripper and repeat process for an additional 15 minutes. Follow same procedure for underside of board. Remove masking/damning materials and replace defective parts. When removing part, scrape away any coating remaining beneath it prior to replacing. Remove flux and wash area with deionized water. Dry with isopropyl alcohol and dry board 2 hours at 80°C. Apply fresh Arathane 5750 A/B (LV) and follow recommended cure schedules.
Total coating removal	Place board into a container of 5750 Stripper. Agitation will increase stripper efficiency. For safety reasons, use 5750 Stripper at room temperature. (Heating up to 50°C in a laboratory hood environment will reduce time to remove coating.) Leave board in 5750 Stripper bath for 15 minutes. The coating will swell and start to fall off the board. Brush board with stiff brush periodically while in bath. Remove and inspect board and brush or scrape away any remaining coating. For excessively thick areas, an additional

soak/brushing in fresh 5750 Stripper may be necessary. When coating is removed, replace defective components. Clean board with deionized water and isopropyl alcohol washes. Dry board for 2 hours at 80°C. Remove as much remaining coating as possible, although any unremoved coating will not adversely affect board performance. New Arathane 5750 A/B (LV) coating will encapsulate the old coating to seal and protect the board and components. Follow directions for applying and curing Arathane 5750 A/B (LV).

Note: Effectiveness of 5750 Stripper will decrease with use. Do not use if amber color or other contaminants become visible. Use only explosion-proof equipment. Keep away from flame and sparks.

Physical Properties (typical values)	Hardness, Shore A*	50
	Tensile strength, psi (N/mm ²)	350 (2.4)
	Elongation, %	150
	Tg, °C	< -70
	Fungus resistance	Non-nutrient
	Maximum continuous use temperature, °C	130
	Flame resistance	Self-extinguishing
	Flexibility	No cracking/crazing
Outgassing at 10⁻⁶ Torr		
	Total Mass loss, %	0.41
	Collectible volatile condensable materials, %	0.03

* Data obtained from cast specimens of 100% solids version of Arathane 5750 A/B (LV)

Electrical Properties (typical values)	Insulation resistance, Ω	> 1.0 x 10 ¹⁵
	Volume resistivity, ohms-cm	
	@ 25°C	9.3 X 10 ¹⁵
	@ 95°C	2.0 X 10 ¹³
	Dielectric strength,	
	3mil thickness, V/mil	> 1,500
	7.5 x 10 ⁻² mm thickness, V/mil	> 59,000
	Dielectric constant	
	@ 25°C, 1 KHz (100 KHz)	2.5 (3.0)
	@ 100°C, 1 KHz (100 KHz)	3.6 (3.2)
	Dissipation factor	
	@ 25°C, 1 KHz (100 KHz)	0.022 (0.025)
	@ 100°C, 1 KHz (100 KHz)	0.024 (0.027)
	Percent change in Q resonance, %	
	1 KHz (50 KHz)	4.5 (3.1)
	Moisture resistance, Ω	8.2 x 10 ¹¹

Handling/Safety Precautions Mandatory and recommended industrial hygiene procedures should be followed whenever our products are being handled and processed. For additional information please consult the corresponding material safety data sheets

Arathane 5750 A/B (LV)

Warning! Flammable. Contains organic isocyanate. Causes severe eye and skin irritation and possible eye burns. Vapor or mist harmful if inhaled. Harmful if swallowed. May cause allergic respiratory reaction.

Work in a well ventilated area and use clean, dry tools for mixing and applying. For two component systems, combine the resin and hardener according to mix ratio. Mix together thoroughly and use immediately after mixing. Material temperature should not be below 65°F (18°C) when mixing.

First Aid

In case of contact:

Eyes: Immediately flush with water for at least 15 minutes. Call a physician.

Skin: Immediately wash with mild soap and water.

Inhalation: Remove person to fresh air. Administer oxygen or artificial respiration if necessary. Call a physician.

Ingestion: If conscious, give plenty of water to drink. Call a physician.

Other: Referral to physician is recommended if there is any question about the seriousness of an injury

Important

The following shall supersede any provision in Buyer's forms, letters and papers.
THERE IS NO WARRANTY OR CONDITION, WHETHER EXPRESS OR IMPLIED BY ANY STATUTE OR OTHERWISE, INCLUDING WARRANTIES AND CONDITIONS OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, FOR THE PRODUCT OR PRODUCTS REFERRED TO HEREIN.
TECHNICAL ADVICE FURNISHED BY THE SELLER SHALL NOT CONSTITUTE A WARRANTY OR CONDITION, STATUTORY OR OTHERWISE, WHICH IS EXPRESSLY DISCLAIMED, ALL SUCH ADVICE BEING GIVEN AND ACCEPTED AT BUYER'S RISK. While the information contained herein is believed to be accurate, Seller makes no representations as to the reliability of the results or as to the results of Buyer or as inducements to infringe any relevant patent, now or hereafter in existence. Testing for intended use is the sole responsibility of Buyer. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended, or for uses for which implantation within the human body is intended. **UNDER NO CIRCUMSTANCES SHALL SELLER BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES FROM ALLEGED NEGLIGENCE, BREACH OF WARRANTY OR CONDITION, STRICT LIABILITY OR ANY OTHER LEGAL THEORY, ARISING OUT OF MANUFACTURE, SALE, USE OR HANDLING OF THE PRODUCT OR PRODUCTS REFERRED TO HEREIN.** The sole remedy of Buyer and the sole liability of Seller for any claims shall be limited to Buyer's purchase price of the product(s) which is the subject of the claim or the amount actually paid for such product(s), whichever is less.

Note

Arathane® is a registered trademark of Huntsman LLC or an affiliate thereof in one or more countries, but not all countries.

Huntsman Advanced Materials
Americas Inc.
281 Fields Lane
Brewster, New York 10509
Tel.: (914) 785-3000
Fax: (914) 785-3472

Arathane 5750-A/B (LV)
January, 2004

EXHIBIT 52



HumiSeal

HUMISEAL® DIV. OF CHASE CORP. MATERIAL SAFETY DATA SHEET

Product: HUMISEAL 1A33 AEROSOL

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURED BY: HUMISEAL DIVISION OF CHASE CORP.
201 ZETA DRIVE
PITTSBURGH, PA 15238

GENERAL INFORMATION: 866-932-0800

EMERGENCY, CHEMTREC: 800-424-9300 (in USA), 703-527-3887 (outside of the USA), only in the event of chemical emergencies involving a spill, leak, fire, exposure or any accident involving chemicals.

REVISION DATE: 11/28/12
PREPARED BY: B. RADMARD

2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS NUMBER	IDENTIFICATION	APP. % BY WGT.
108-88-3	TOLUENE	15-25
67-64-1	ACETONE	20-30
1330-20-7	XYLENE	1-10
100-41-4	ETHYL BENZENE	1-10
78-93-3	METHYL ETHYL KETONE	1-10
115-10-6	DIMETHYL ETHER	20-30
142-82-5	HEPTANE	1-10
763-69-9	ETHYL 3 ETHOXY PROPIONATE	1-10
PROP.	OIL MOD. POLYURETHANE	PROP.

3. HAZARDOUS IDENTIFICATION

HAZARDOUS POLYMERIZATION: Will Not Occur

ROUTES OF EXPOSURE: Inhalation, Skin, Eyes and Ingestion.

IMMEDIATE EFFECTS:

INHALATION: Causes irritation of nasal passages and throat. Causes stupor (central nervous system depression).

SKIN CONTACT: Can cause moderate skin injury (reddening and swelling). Repeated or prolonged contact can cause drying of skin and dermatitis.

EYE CONTACT: Liquid and vapors are irritating to eyes. Can cause severe injury.

INGESTION: Can cause mental sluggishness.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Significant exposure to these chemicals may adversely affect people with chronic disease of the respiratory system, skin, central nervous system and/or eyes.

EXHIBIT 12

Ruben Juarez
03/08/2018

Elizabeth Schmidt
CSR#12598

**HUMISEAL® DIV. OF CHASE CORP.
MATERIAL SAFETY DATA SHEET**

GENERAL ADVICE: Consult Physician immediately.

INHALATION: Remove victim to fresh air and provide oxygen if breathing is difficult.

SKIN CONTACT: Flush with water while removing contaminated clothing. Wash skin with soap and water.

EYE CONTACT: Remove contact lenses. Flush eye thoroughly with running water. If irritation persists, see a Physician

INGESTION: Do not induce vomiting. If vomiting occurs spontaneously keep head below hips to prevent aspiration into lungs, which may be fatal. Contact Physician immediately.

5. FIRE FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA: Foam, Carbon Dioxide or dry chemical. Use self-contained breathing apparatus if applicable.

6. ACCIDENTAL RELEASE MEASURES

PRECAUTIONS FOR PERSONNEL: Wear protective clothing. Use self-contained breathing apparatus if required.

ENVIRONMENTAL PRECAUTIONS: Avoid discharge to drains, sewers and natural water supply.

PROCESS FOR CLEANING: Absorb with inert material. Remove sources of ignition. Scoop material with non-sparking tools.

7. HANDLING AND STORAGE

HANDLING: Ventilate work area sufficiently. Keep containers closed. Avoid contact with eyes, skin and clothing.

STORAGE: Store between 0 °C and +35 °C for solvent based coatings and thinners. Allow all coatings/thinners to reach process temperature before using (wait 24 hrs. or more to allow temperature equalization if necessary). Ground all metal containers.

8. EXPOSURE RESTRICTIONS AND PERSONAL PROTECTION

MATERIALS WITH LIMITS THAT REQUIRE SUPERVISION:

CAS NUMBER	IDENTIFICATION	APP. % BY WGT.	NIOSH REL	VALUE	UNIT
108-88-3	TOLUENE	15-25	TWA	200/300	ppm / (mg/m3)
67-64-1	ACETONE	20-30	TWA	100/240	
1330-20-7	XYLENE	1-10	TWA	100/435	
100-41-4	ETHYL BENZENE	1-10	TWA	100/435	
78-93-3	METHYL ETHYL KETONE	1-10	TWA	200/590	
115-10-6	DIMETHYL ETHER	20-30	TWA	N/E/N/E	
142-82-5	HEPTANE	1-10	TWA	500/2000	
763-69-9	ETHYL 3 ETHOXY PROPIONATE	1-10	TWA	N/E/N/E	

ADDITIONAL ADVICE: Use personal protective equipment, i.e., suitable work clothing, eye goggles and protective gloves. If spraying utilize protective facemask.

**HUMISEAL® DIV. OF CHASE CORP.
MATERIAL SAFETY DATA SHEET**

9. PHYSICAL PROPERTIES

ODOR: AROMATIC

CHANGE OF STATE	VALUE/AREA			UNIT	METHOD
FREEZING POINT:	N/A			°C	
BOILING POINT:	N/A			°C	
FLASH POINT:	< -9° (15°)			°C (°F)	TCC
IGNITION TEMPERATURE:	N/A				
SPECIFIC GRAVITY:	0.79			H ₂ O = 1	
% VOLATILE BY VOLUME:	90-93			%	
SOLUBILITY IN WATER:	NEGLIGIBLE				
PH VALUE:					
VISCOSITY:	N/E			CPS	
FLAMMABLE LIMITS:	LEL N/E	UEL >1	N/E		
EVAPORATION RATE:				BUAC = 1	

10. STABILITY AND REACTIVITY

STABILITY:	Stable
CONDITIONS TO AVOID:	Freezing, Sparks and Open Flame.
MATERIALS TO AVOID:	Contact with strong oxidizing, acidic or alkaline agents.
DECOMPOSITION PRODUCTS:	Carbon Monoxide, Carbon Dioxide and Oxides of Nitrogen.
EYES:	Splashes or spray vapors may cause irritation.
SKIN:	Substance may be an irritant for sensitive skin.
INHALATION:	May cause mild nausea/dizziness in some people when used in confined/unventilated areas. Move patient to fresh air. Give nothing by mouth.
CONSUMPTION:	If accidentally swallowed may cause discomfort and requires plenty of water or milk to dilute. Do not induce vomiting. Seek medical assistance.

11. TOXICOLOGICAL INFORMATION

ACUTE ORAL LD:	(mg/kg) : LD (50) (RATS) : 5g/kg
ACUTE DERMAL:	50 (mg/kg) : LD (50) (RABBITS) :>2000mg/kg
ACUTE INHALATION:	50 (mg/l)
OTHER:	

12. ECOLOGICAL INFORMATION

VOLATILE ORGANIC COMPOUNDS:	462	Grams Per Liter (g/l).	3.86	Pounds Per Gallon (lb/g).
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13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Disposal should be made in accordance with Federal, State and Local regulations.

14. TRANSPORT INFORMATION

SHIPPING	AIR	OCEAN	TRUCK
Proper Shipping Name:	CONSUMER COMMODITY	AEROSOLS	CONSUMER COMMODITY
Hazardous Class:	9	2.1	
UN Number:	ID8000	UN1950	
Packaging Instruction or IMDG Page:	Y963	2102	173.306
Marking:	CONSUMER COMMODITY ID8000	NO MARKING ON PACKAGE	NO MARKING ON PACKAGE
Label:	MISCELLANEOUS and "Y" LTD QTY LABEL	LTD QTY LABEL	LTD QTY LABEL

HUMISEAL® DIV. OF CHASE CORP. MATERIAL SAFETY DATA SHEET

15. REGULATORY INFORMATION

SARA SECTION 302:

SARA (311,312) HAZARD CLASS:

SARA (313) CHEMICALS: TOLUENE, METHYL ETHYL KETONE, ACETONE, XYLENE, ETHYL BENZENE,
BENZENE

CERCLA: TOLUENE;1000 LBS., MEK;5000 LBS., ACETONE;5000 LBS., XYLENE;10000LBS., ETHYL
BENZENE;1000 LBS.

CPSC CLASSIFICATION:

HMIS: FLAMMABILITY: 4 REACTIVITY: 0 HEALTH: 3

NFPA: FLAMMABILITY: 4 REACTIVITY: 0 HEALTH: 3

CALIFORNIA PROPOSITION 65:

- A. This product contains a chemical known to the State of CA to cause birth defects or other reproductive harm.
- B. This product contains a chemical known to the State of CA to cause cancer.
- C. This product contains a chemical known to the State of CA to cause cancer and birth defects or other reproductive harm.

ECCN:EAR99

16. OTHER INFORMATION

THIS DATA IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND ARE NOT A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED IS MADE. THE STATED RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.

C = Ceiling Limit, NEGL = Negligible, N/A = Not Applicable, N/E = Not Established, PROP. = Proprietary.

EXHIBIT 53



HumiSeal

HUMISEAL® MATERIAL SAFETY DATA SHEET

Product: HUMISEAL THINNER 521EU

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURED BY: HUMISEAL DIVISION OF CHASE CORP.
201 ZETA DRIVE
PITTSBURGH, PA 15238

GENERAL INFORMATION: 866-932-0800

EMERGENCY, CHEMTREC: 800-424-9300 (in USA), 703-527-3887 (outside of the USA), only in the event of chemical emergencies involving a spill, leak, fire, exposure or any accident involving chemicals.

REVISION DATE: 05/13/14

PREPARED BY: B. RADMARD

2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS NUMBER	IDENTIFICATION	APP. % BY WGT.
1330-20-7	XYLENE	90-100

3. HAZARDOUS IDENTIFICATION

HAZARDOUS POLYMERIZATION: Will Not Occur

ROUTES OF EXPOSURE: Inhalation, Skin, Eyes and Ingestion.

IMMEDIATE EFFECTS:

INHALATION: Causes irritation of nasal passages and throat. Causes stupor (central nervous system depression).

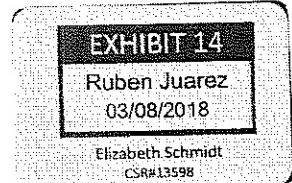
SKIN CONTACT: Can cause moderate skin injury (reddening and swelling). Repeated or prolonged contact can cause drying of skin and dermatitis.

EYE CONTACT: Liquid and vapors are irritating to eyes. Can cause severe injury.

INGESTION: Can cause mental sluggishness.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Significant exposure to these chemicals may adversely affect people with chronic disease of the respiratory system, skin, central nervous system and/or eyes.



4. FIRST AID MEASURES

GENERAL ADVICE: Consult Physician immediately.

INHALATION: Remove victim to fresh air and provide oxygen if breathing is difficult.

SKIN CONTACT: Flush with water while removing contaminated clothing. Wash skin with soap and water.

EYE CONTACT: Remove contact lenses. Flush eye thoroughly with running water. If irritation persists, see a Physician

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HUMISEAL® MATERIAL SAFETY DATA SHEET

INGESTION: Do not induce vomiting. If vomiting occurs spontaneously keep head below hips to prevent aspiration into lungs, which may be fatal. Contact Physician immediately.

5. FIRE FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA: Foam, Carbon Dioxide or dry chemical. Use self-contained breathing apparatus if applicable.

6. ACCIDENTAL RELEASE MEASURES

PRECAUTIONS FOR PERSONNEL: Wear protective clothing. Use self-contained breathing apparatus if required.

ENVIRONMENTAL PRECAUTIONS: Avoid discharge to drains, sewers and natural water supply.

PROCESS FOR CLEANING: Absorb with inert material. Remove sources of ignition. Scoop material with non-sparking tools.

7. HANDLING AND STORAGE

HANDLING: Ventilate work area sufficiently. Keep containers closed. Avoid contact with eyes, skin and clothing.

STORAGE: Store between -15°C and +35°C for solvent based coatings and thinners. Do not allow water based coatings or thinners to freeze. Allow all coatings/thinners to reach process temperature before using (wait 24 hrs. or more to allow temperature equalization if necessary). Ground all metal containers. 55-gallon drums may be stored on their sides in a cradle designed for this purpose.

8. EXPOSURE RESTRICTIONS AND PERSONAL PROTECTION

MATERIALS WITH LIMITS THAT REQUIRE SUPERVISION:

CAS NUMBER	IDENTIFICATION	APP. % BY WGT.	NIOSH REL	VALUE	UNIT
1330-20-7	XYLENE	90-100	TWA	100/435	ppm/(mg/m ³)

ADDITIONAL ADVICE: Use personal protective equipment, i.e., suitable work clothing, eye goggles and protective gloves. If spraying utilize protective facemask.

9. PHYSICAL PROPERTIES

ODOR: AROMATIC

CHANGE OF STATE	VALUE/AREA	UNIT	METHOD
FREEZING POINT:	N/A	°C	
BOILING POINT:	137	°C	
FLASH POINT:	30 (86)	°C (°F)	TCC
IGNITION TEMPERATURE:			
SPECIFIC GRAVITY:	0.87	H ₂ O = 1	
% VOLATILE BY VOLUME:	100	%	
SOLUBILITY IN WATER:	NEGLIGIBLE		
PH VALUE:			
VISCOSITY:		CPS	
FLAMMABLE LIMITS:	LEL 0.9 UEL 7.0		
EVAPORATION RATE:	.60	BUAC = 1	

10. STABILITY AND REACTIVITY

STABILITY: Stable

CONDITIONS TO AVOID: Freezing, Sparks and Open Flame.

MATERIALS TO AVOID: Contact with strong oxidizing, acidic or alkaline agents.

DECOMPOSITION PRODUCTS: Carbon Monoxide, Carbon Dioxide and Oxides of Nitrogen.

EYES: Splashes or spray vapors may cause irritation.

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SKIN: Substance may be an irritant for sensitive skin.
INHALATION: May cause mild nausea/dizziness in some people when used in confined/unventilated areas. Move patient to fresh air. Give nothing by mouth.
CONSUMPTION: If accidentally swallowed may cause discomfort and requires plenty of water or milk to dilute. Do not induce vomiting. Seek medical assistance.

11. TOXICOLOGICAL INFORMATION

ACUTE ORAL LD: (mg/kg) : LD(50) (RATS) : 5g/kg
ACUTE DERMAL: 50 (mg/kg) : LD (50) (RABBITS):>2000mg/kg
ACUTE INHALATION: 50 (mg/l) :
OTHER:

12. ECOLOGICAL INFORMATION

VOLATILE ORGANIC COMPOUNDS: 860 Grams Per Liter (g/l). 7.18 Pounds Per Gallon (lb/g).

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Disposal should be made in accordance with Federal, State and Local regulations.

14. TRANSPORT INFORMATION

SHIPPING CLASS: UN1263 PAINT RELATED MATERIAL FLAMMABLE LIQUID
Class 3 ; PG II

15. REGULATORY INFORMATION

SARA SECTION 302:

SARA (311,312) HAZARD CLASS:

SARA (313) CHEMICALS: XYLENE

CERCLA: XYLENE;1000 LBS., .

CPSC CLASSIFICATION:

HMIS: FLAMMABILITY: 3 REACTIVITY: 0 HEALTH: 3

NFPA: FLAMMABILITY: 3 REACTIVITY: 0 HEALTH: 3

CALIFORNIA PROPOSITION 65:

- A. This product contains a chemical known to the State of CA to cause birth defects or other reproductive harm.
- B. This product contains a chemical known to the State of CA to cause cancer.
- C. This product contains a chemical known to the State of CA to cause cancer and birth defects or other reproductive harm.

ECCN: EAR99

16. OTHER INFORMATION

THIS DATA IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND ARE NOT A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED IS MADE. THE STATED RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.

C = Ceiling Limit, NEGL = Negligible, N/A = Not Applicable, N/E = Not Established, PROP. = Proprietary.

EXHIBIT 54



Material Safety Data Sheet

SECTION 1: Chemical Product and Company Identification

Manufacturer: Cumberland Swan
One Swan Drive
Smyrna, TN 37167

Date: March 2000

Product: Isopropyl Alcohol (IPA)

50%, 70%, 91% and 99% IPA

Telephone: (615) 459-8900

24hr Emergency: (615) 459-8900 ext. 5270

SECTION 2: Composition/Information on Ingredients

Name: Isopropanol, IPA, 2-Propanol, Dimethyl Carbinol CAS#: 67-63-0

SECTION 3: Hazards Identification

Colorless, volatile liquid with the odor of rubbing alcohol. Isopropyl Alcohol is a dangerous fire risk. Prolonged exposure to elevated concentrations of vapors may result in irritation of the eyes, nose, and throat and central nervous system (CNS) depression. Prolonged dermal exposure can result in dry, cracking skin.

Potential Routes of Exposure: Ingestion, inhalation, dermal contact, eye contact

Target Organs: Eyes, skin, respiratory system

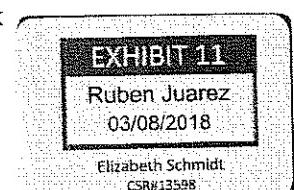
Symptoms of Overexposure:

Inhalation:	Mild irritation of eyes, nose and throat.
Ingestion:	Drowsiness, headache
Dermal Contact:	Dry, cracking skin
Acute Effects:	Irritation of skin and/or upper respiratory tract as noted above. Acute CNS depression may be manifested as giddiness, headache, dizziness and/or nausea.
Chronic Effects:	Chronic exposure can result in skin irritation and contact dermatitis. Pre-existing disorders of the skin, eyes, and respiratory tract may be exacerbated by exposure to isopropyl alcohol.

HMIS: H=1, F=3, R=0 See Section 8 for PPE information

SECTION 4: First Aid Measures

Eye:	Flush eyes with copious amount of water for at least 15 minutes
Skin:	Flush with water. If irritation persists, seek medical attention.
Ingestion:	Do not induce vomiting if victim is unconscious or drowsy. Seek medical attention or contact the poison control center.
Inhalation:	Remove victim to fresh air and provide oxygen if breathing is difficult. Seek Medical attention if breathing continues to be difficult.



SECTION 5: Fire Fighting Measures

Extinguishing Media: Use water fog, alcohol foam, dry chemical or CO₂
Unusual Fire or Containers exposed to intense heat from fires should be
Explosion Hazards: cooled with large amounts of water to prevent buildup of
internal pressure due to vapor generation which could
result in container rupture.
Recommendations: Clear area of unprotected personnel. Wear complete
turnout gear. Cool containers exposed to fire with water.

SECTION 6: Accidental Release Measures

Large Spills: Eliminate all ignition sources. Equipment must be grounded to
prevent sparking. Evacuate the area of unprotected personnel.
Contain source of spill. Dike or otherwise confine spilled
product. Uncontrolled releases to air, land, or water may be
reportable to the National Response Center (1-800-424-8802).
Small Spills: Take up with absorbent material and place in non-leaking
container; seal tightly. Dispose of absorbent (see section 13)

SECTION 7: Handling and Storage

Storage Requirements: Store in tightly closed containers in a cool, dry area
away from heat and other possible ignition sources.
Handling precautions: Use non-sparking tools to open containers. Maintain
appropriate class of fire extinguishers nearby in case
of fire.

SECTION 8: Exposure Controls / Personal Protection

OSHA PEL=400ppm OSHA STEL=500ppm IDLH=12,000ppm
Recommended Engineering Controls: Use explosion-proof ventilation
equipment as necessary to maintain airborne concentrations below the PEL.
Ground all containers to prevent static sparks during fluid transfers.
Recommended Admin Controls: Train employees on the hazards of Isopropyl
Alcohol
PPE: Goggles, gloves, NIOSH approved respiratory protection required when
above PEL/TWA
Recommended Hygiene Practices: Clean PPE and work clothing contaminated
prior to reuse. After working with this product, be sure to wash before eating,
smoking, drinking, or applying cosmetics.

SECTION 9: Physical and Chemical Properties

Appearance: Colorless Liquid **UEL:** 12% **LEL:** 2%

Odor: Mild Rubbing Alcohol **Odor Threshold:** 43ppm **Water solubility:** Miscible

	50% IPA	70%IPA	91%IPA	99%IPA
Vapor Pressure (@ 68°F) approx.	29mm	23mm	33mm	33mm
Specific Gravity	.929	.878	.790	.790
Boiling Point	176 °F	176 °F	180 °F	181 °F
Flash Point (TAG Open Cup)	74.5 °F	70.5 °F	54 °F	53 °F
Freezing Point	-32-50 °C	-32-50 °C	-32-50 °C	-127 °F
Molecular Weight	47.5	47.5	47.5	60.1
Auto Ignition Temperature	No Data	No Data	No Data	750 °F

SECTION 10: Stability and Reactivity

Stability: Stable
Polymerization: Will not occur
Incompatible Chem: Strong oxidizers, acetaldehyde, chlorine, ethylene oxide, acids, isocyanates
Conditions to avoid: Heat, sparks, and open flame.
Hazardous Products: Do Not store in aluminum > 120 °F
CO and unidentified organic compounds may be formed of Decomposition

SECTION 11: Toxicological Information

LD50: 5,840 mg/kg (acute oral - rat); 13,000 mg/kg (acute dermal - rabbit)
LD50: 16,000 ppm/8hr (inhalation - rat) **Mutagenicity:** Not Indicated
LD_{lo}: 5,000 mg/kg (oral - rabbit) **Reproductive Effects:** Not Indicated
Carcinogenicity: Not identified as a carcinogen by OSHO, IARC, or NTP

SECTION 12: Ecological Information

Ecotoxicity: N/A **Environmental Fate:** N/A

Soil Absorption/Mobility: Highly Mobile

Environmental Degradation: Should be removed readily from soils and water by volatilization and biodegradation.

SECTION 13: Disposal Considerations

Disposal: Contact your supplier or a licensed contractor for detailed recommendations.

Disposal regulatory Requirements: Follow applicable Federal, state, and local regulations. Consider fuels blending as an alternative to incineration.

SECTION 14: Transport Information

DOT Shipping Name: Isopropanol DOT Packing Group: II
DOT Hazard Class: 3 DOT Label: Flammable Liquid
UN ID#: UN 1219

SECTION 15: Regulatory Information

RCRA Hazardous Waste Number/ Classification: D001 CERCLA Substance: N/A

HAZARDOUS AIR POLLUTANT (CAA): No SARA 311/312 Codes: N/A

SARA Toxic Chemical: Yes, (Strong manufacturing only)

CERCLA Reportable Quantity: 10,000 lbs (Default)

SECTION 16: Other Information

Prepared by: Cumberland Swan

Sources of Information: 29 CFR 1910.1000; NIOSH Pocket Guide to Chemical Hazards (1993); Occupational Health Guidelines for Chemical Hazards; NFPA Guide to Hazardous Materials - 10th Edition.

Disclaimer: While reasonable care has been taken to ensure the accuracy and completeness of the information regarding the material described herein, it is the purchaser's responsibility to ensure the suitability of such information as it applies to the purchaser's intended use of the material.

EXHIBIT 55



285

Mildly Activated Rosin Cored Wire For Lead-bearing and Lead-free alloys

Product Description

Kester 285 mildly activated rosin flux is classified as Type ROL0 flux under IPC J-STD-004. This flux was formerly classified as Type RMA per MIL-F-14256. Kester 285 consists of high quality, purified rosin to which a synergistic combination of activating agents has been incorporated. The fluxing ability of 285 is much greater than ordinary mildly activated rosin fluxes and is comparable to fully activated rosin fluxes. Kester 285 has been developed for use in the electronic industry where difficult assemblies are to be soldered, but process requirements stipulate use of a mildly activated rosin flux.

Performance Characteristics:

- Industry standard RMA cored wire
- Compatible with leaded and lead-free alloys
- Classified as ROL0 per J-STD-004

RoHS Compliance

This product meets the requirements of the RoHS (Restriction of Hazardous Substances) Directive, 2002/95/EC Article 4 for the stated banned substances. (Applies only if this core flux is combined with a lead free alloy)

Reliability Properties

Copper Mirror Corrosion: Low

Tested to J-STD-004, IPC-TM-650, Method 2.3.32

Corrosion Test: Low

Tested to J-STD-004, IPC-TM-650, Method 2.6.15

Silver Chromate: Pass

Tested to J-STD-004, IPC-TM-650, Method 2.3.33

Chloride and Bromides: None Detected

Tested to J-STD-004, IPC-TM-650, Method 2.3.35

Fluorides by Spot Test: Pass

Tested to J-STD-004, IPC-TM-650, Method 2.3.35.1

SIR, IPC (typical): Pass

Tested to J-STD-004, IPC-TM-650, Method 2.6.3.3

	<u>Blank</u>	<u>285</u>
Day 1	$1.0 \times 10^{10} \Omega$	$3.2 \times 10^9 \Omega$
Day 4	$9.5 \times 10^9 \Omega$	$7.7 \times 10^9 \Omega$
Day 7	$8.3 \times 10^9 \Omega$	$7.0 \times 10^9 \Omega$

Spread Test (typical):

Tested to J-STD-004, IPC-TM-650, Method 2.4.46

Flux Core Solder	Area of Spread mm ² (in ²)	
	Cu	Ni
285 Mildly Activated Rosin	335 (0.52)	140 (0.22)
282 Mildly Activated Rosin	240 (0.37)	100 (0.16)
44 Fully Activated Rosin	280 (0.43)	160 (0.25)

Juarez00944

Application Notes

Availability:

Kester 285 is available in a wide variety of alloys, wire diameters and flux percentages. For most applications, Sn63Pb37 or Sn96.5Ag3.0Cu0.5 is used. Consult the alloy temperature chart in Kester's product catalog for a comprehensive alloy list. The standard wire diameter for most applications is 1.00mm (0.031in). Wire diameters range from 0.25 - 6.00mm (0.010 to 0.250in). A "Standard Wire Diameters" chart is included in Kester's product catalog. The amount of flux in the wire dictates the ease of soldering for an application. For most applications, core 66 (3.3% flux by weight) is recommended. Other core sizes, 50 and 58, (1.1% and 2.2% respectively) are available. Kester 285 is packaged on spools of different sizes to accommodate a variety of applications.

Process Considerations:

Solder iron tip temperatures are most commonly between 315-371°C (600-700°F) for Sn63Pb37 and Sn62Pb36Ag02 alloys and 371-427°C (700-800°F) for lead-free alloys. Heat both the land area and component lead to be soldered with the iron prior to adding Kester 285 cored wire. Apply the solder wire to the land area or component lead. Do not apply the wire directly to the soldering iron tip. If needed, Kester 186 and 186-18 Mildly Activated Rosin Flux may be used as a compatible liquid flux to aid in reworking soldered joints. Kester 186 and 186-18 Mildly Activated Rosin Flux are also available in Flux-Pens® for optimum board cleanliness.

Cleaning:

Kester 285 flux residues are non-corrosive, non-conductive and do not require removal in most applications.

Storage, Handling, and Shelf Life:

Storage must be in a dry, non-corrosive environment. The surface may lose its shine and appear a dull shade of grey. This is a surface phenomena and is not detrimental to product functionality. Flux cored solder wire has a limited shelf life determined by the alloy used in the wire. For alloys containing > 70% lead, the shelf life is two years from date of manufacture. Other alloys have a shelf life of three years from date of manufacture.

Health & Safety:

This product, during handling or use, may be hazardous to health or the environment. Read the Material Safety Data Sheet and warning label before using this product.

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Sumida-Ku
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(+81) 3-3624-5351
jpsales@kester.com.sg

The data recommendations presented are based on tests, which we consider reliable. Because Kester has no control over the conditions of use, we disclaim any responsibility connected with the use of any of our products or the information presented. We advise that all chemical products be used only by or under the direction of technically qualified personnel who are aware of the potential hazards involved and the necessity for reasonable care in their handling. The technical information contained herein is consistent with the properties of this material but should not be used in the preparation of specifications as it is intended for reference only. For assistance in preparing specifications, please contact your local Kester office for details.

Rev. 15Jun07

Juarez 944-945 MSDS Mildly Activated Rosin Cored Wire.pdf - Goog... https://drive.google.com/file/d/0B58uP7JNYi8LV1RDQjVRSFk5TTQ...

Juarez 944-945 MS ... in Cored Wire.p Open with



285

Mildly Activated Rosin Cored Wire For Lead-bearing and Lead-free alloys

Product Description

Kester 285 mildly activated rosin flux is classified as Type ROL0 flux under IPC J-STD-004. This flux was formerly classified as Type RMA per MIL-F-14256. Kester 285 consists of high quality, purified rosin to which a synergistic combination of activating agents has been incorporated. The fluxing ability of 285 is much greater than ordinary mildly activated rosin fluxes and is comparable to fully activated rosin fluxes. Kester 285 has been developed for use in the electronic industry where difficult assemblies are to be soldered, but process requirements stipulate use of a mildly activated rosin flux.

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- Compatible with leaded and lead-free alloys
- Classified as ROL0 per J-STD-004

RoHS Compliance

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Reliability Properties

Copper Mirror Corrosion: Low

Tested to J-STD-004, IPC-TM-650, Method 2.3.32

Corrosion Test: Low

Tested to J-STD-004, IPC-TM-650, Method 2.6.15

Silver Chromate: Pass

Tested to J-STD-004, IPC-TM-650, Method 2.3.33

Chloride and Bromides: None Detected

Tested to J-STD-004, IPC-TM-650, Method 2.3.35

Fluorides by Spot Test: Pass

Tested to J-STD-004, IPC-TM-650, Method 2.3.35.1

SIR, IPC (typical): Pass

Tested to J-STD-004, IPC-TM-650, Method 2.6.3.3

	Blank	285
Day 1	$1.0 \times 10^{10} \Omega$	$3.2 \times 10^9 \Omega$
Day 4	$9.5 \times 10^9 \Omega$	$7.7 \times 10^9 \Omega$
Day 7	$8.3 \times 10^9 \Omega$	$7.0 \times 10^9 \Omega$

Spread Test (typical):

Tested to J-STD-004, IPC-TM-650, Method 2.4.46

Flux Core Solder	Area of Spread mm ² (in ²)	
	Cu	Ni
285 Mildly Activated Rosin	335 (0.52)	140 (0.22)
282 Mildly Activated Rosin	240 (0.37)	100 (0.16)
44 Fully Activated Rosin	280 (0.43)	160 (0.25)

EXHIBIT 56

COLOR

From: Mike Lynch
To: Jane Malubag; Diane Prins
Subject: FW: work status
Date: Tuesday, October 28, 2014 3:52:35 PM
Attachments: letter to SpaceX.docx

-----Original Message-----

From: ruben juarez [mailto:rubjua70@yahoo.com]
Sent: Saturday, September 06, 2014 1:10 PM
To: Mike Lynch
Subject: work status

please see attached letter.

Regards,

Ruben Juarez



Hi Mike,

I would like to know my current status with SpaceX. The act of writing this letter brings out my anxiety and migraines, very unpleasant feeling that I want to put behind me. Per my last telephone conversation/email with SpaceX I was told the following;

- I couldn't return to work unless I was 100%.
- SpaceX cannot provide any accommodations e.g., flexible schedule, part time.

→ On Thu, 6/26/14, Gregory Maxwell <Gregory.Maxwell@spacex.com>

> wrote:

>

> Subject: Re: FOLLOW UP

> To: "ruben juarez" <ruba70@yahoo.com>

> Date: Thursday, June 26, 2014, 8:15 AM

>

> We will not be able to

> support part time work. We need you fully released and ready to resume responsibilities.

>

> Sent from my iPhone

Furthermore, I was intimidated/single out/threaten due to my medical condition by SpaceX (Gregory Maxwell) as he told me that if I was going to return to work, I will be subject to more work than others or as he said " I'll going to make you work"

From: ruben juarez [mailto:ruba70@yahoo.com]

> Sent: Friday, June 27, 2014 11:10 AM

> To: Gregory Maxwell

> Cc: Heather Lord; mike.lynche@spacex.com

> Subject: RE: FOLLOW UP

>

> Maxwell,

> Per our conversation yesterday you mention two things that I want to comment on:

> 1. - "when you come back you better be ready to work, we going to make you work" what do you mean by that? Do you mean that I have to work more than others? I don't understand, I have always I have always done my best.

> 2. -"I'm letting you know that you are going to be running the machines" is this a punishment due to my medical condition? Are you/SpaceX changing the rules due to my medical condition? Or is just an excuse for you not wanting me back? I have work for SpaceX for over two years as production support.

> If you don't want me back notify HR, I don't want to go back to a hostile work environment. And have to end up in the ER due to the work stress and having my family suffer for no good reason.

> Regards,

> Ruben Juarez

In addition, I was instructed that I will be performing task that I was not hired to do nor do I know how to do it due to my medical condition.

From: "ruben juarez" <ruba70@yahoo.com>To: "Gregory Maxwell"
<Gregory.Maxwell@spacex.com>Cc: "Heather Lord"

<Heather.Lord@spacex.com>"mike.lynche@spacex.com" <mike.lynche@spacex.com>"John Pena"
<John.Pena@spacex.com>

→ Maxwell,

You can put it any way you like it, I know what you told me. I was hired as an equipment specialist after few months I was informed by management that they (spaceX) were going to remove all the specialist, but not to worry that all remain the same for me I was getting ready to do the programming all the SMT machines so the title did not matter at that time, however now you want me to be an operator? "that being said you will primarily focus on processing product through the SMT line" that was not the agreement. Why would I leave a manufacturing engineer position to work as an operator? Is very easy just tell HR that you don't need a sick person and that is the end, don't have to worry any more about me getting to work or calling in late due to my disability. Just be a man and told them what you told me don't sugarcoat it, as I told you on the private email you sound so cold.

Attached are some BC cards from my previous jobs, I could not locate the most recent from express manufacturing. I was an SMT manager for Magnetek but they put facilities I don't care, is the same that is happening now with the "titles".

Please do not replay, this situation is aggravating my migraines.

Regards,

Ruben Juarez

Due to the above email exchange I end up with a terrible migraines for 4 days and I had to take pain medication against my neurologist recommendations. I told me doctor what had happen, about me taking percocet and the email exchange, so is documented and I also mention it to Heather Lord.

From: ruben juarez [mailto:rubju70@yahoo.com]

Sent: Thursday, June 26,
2014 5:52 PM
To: Heather Lord
Subject: RE: missed call

Heather

In few minutes I'm taking a very strong pain medication, but I would like to talk to you about the "part time" idea. I think I didn't explain myself well. Please let me know when is a good time for you to talk.

Thank you I really appreciate your help.
Regards,

Ruben Juarez

I was also informed that a manager from HR will contact me which it never happen.

On Thu, 6/26/14, Heather Lord <Heather.Lord@spacex.com>
wrote:

Subject: RE: missed
call
To: "ruben juarez" <crubjua70@yahoo.com>
Cc: "Mike Lynch" <Mike.Lynch@spacex.com>
Date: Thursday, June 26, 2014, 7:09 PM

Hi Ruben - I am gone for the
day. I will have Mike Lynch reach out to
you before speaking to your management team.

Finally, I have been mistreated by SpaceX, is a lot to desire from the way my case was handle from
management to HR e.g., missing papers, not returning phone call, not returning emails/disregarding
emails. Everything that could had gone wrong did and some. **No job in this word is worth me going to the**
ER room every week due to toxic work environment. I understand that this is the way SpaceX handles
persons with disabilities. Therefore, I just want to move on with my life and forget about this nightmare. All
I ask for was to get my job back, and to be treated with dignity but that was too much to ask for a person
with a special needs.

P.s all medical reports and ADA forms were summited on timely matter.

Regards,

Ruben Juarez.

EXHIBIT 57

Catalona, Alex

From: Catalona, Alex
Sent: Monday, July 16, 2018 5:53 PM
To: 'Teresa Li'; Kahren Harutyunyan
Cc: Andrew Spielberger; Daniel Balaban
Subject: RE: Juarez v. PVA - scheduling of conference per L.R. 7-3

Teresa and Kahren, Thank you for speaking today regarding the upcoming motion. Let me know if Andrew would like to speak as well. I have availability on Wednesday. Or I could speak early tomorrow morning. Let me know your preference. Thanks.

-Alex

From: Teresa Li [mailto:teresa@lawofficesofteresali.com]
Sent: Monday, July 16, 2018 3:39 PM
To: Kahren Harutyunyan <Kahren@dbaslaw.com>
Cc: Teresa Li <teresa@lawofficesofteresali.com>; Andrew Spielberger <andrew@dbaslaw.com>; Daniel Balaban <daniel@dbaslaw.com>; Catalona, Alex <acatalona@bkscal.com>
Subject: Re: Juarez v. PVA - scheduling of conference per L.R. 7-3

Kahren, can you join the call instead?

Teresa
Teresa Li, Esq.
Law Offices of Teresa Li, PC
East Bay Office:
6701 Koll Center Parkway, Suite 250
Pleasanton, CA 94566
Phone: (888) 635-3259
Fax: (888) 646-5493
[Email: Teresa@LawOfficesOfTeresaLi.com](mailto:Teresa@LawOfficesOfTeresaLi.com)
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San Francisco Satellite Office:
315 Montgomery Street, 9th Floor
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Fax: (415) 423-3402

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On Jul 16, 2018, at 3:37 PM, Kahren Harutyunyan <Kahren@dbaslaw.com> wrote:

Teresa,

Andy is a in a middle of an expert deposition right now. When he said he'll be available after 11am he was referring to tomorrow.

Kahren Harutyunyan, Esq.
Balaban & Spielberger, LLP
11999 San Vicente Boulevard, Ste.345
Los Angeles, CA 90049
Tel: (424) 832-7677
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From: Teresa Li <teresa@lawofficesofteresali.com>
Sent: Monday, July 16, 2018 3:34 PM
To: Andrew Spielberger <andrew@dbaslaw.com>
Cc: Teresa Li <teresa@lawofficesofteresali.com>; Daniel Balaban <daniel@dbaslaw.com>; Kahren Harutyunyan <Kahren@dbaslaw.com>; Catalona, Alex <acatalona@bkscal.com>
Subject: Re: Juarez v. PVA - scheduling of conference per L.R. 7-3

Andy,

We are on the line, waiting for you.

Conf. No. 1-888-272-7337
Code: 7358690874

Teresa

Teresa Li, Esq.
Law Offices of Teresa Li, PC
East Bay Office:
6701 Koll Center Parkway, Suite 250
Pleasanton, CA 94566
Phone: (888) 635-3259
Fax: (888) 646-5493
Email: Teresa@LawOfficesOfTeresaLi.com
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On Jul 16, 2018, at 10:36 AM, Catalona, Alex <acatalona@bkscal.com> wrote:

This works best for me. Thank you. You can call my conference call line at 3:30 pm if that time works for you.

Conf. No. 1-888-272-7337
Code: 7358690874

From: Teresa Li [<mailto:teresa@lawofficesofteresali.com>]
Sent: Monday, July 16, 2018 10:34 AM
To: Andrew Spielberger <andrew@dbaslaw.com>
Cc: Teresa Li <teresa@lawofficesofteresali.com>; Catalona, Alex <acatalona@bkscal.com>; Daniel Balaban <daniel@dbaslaw.com>; Kahren Harutyunyan <Kahren@dbaslaw.com>
Subject: Re: Juarez v. PVA - scheduling of conference per L.R. 7-3

I am also free this afternoon.

Teresa
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On Jul 16, 2018, at 10:31 AM, Andrew Spielberger
<andrew@dbaslaw.com> wrote:

I can be available from 11 am through the remainder of the day.

Andrew J. Spielberger
Balaban & Spielberger, LLP
11999 San Vicente Boulevard, Ste.345
Los Angeles, CA 90049
Tel: (424) 832-7677
Fax: (424) 832-7702

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From: Teresa Li <teresa@lawofficesofteresali.com>
Sent: Monday, July 16, 2018 10:30 AM
To: Catalona, Alex <acatalona@bkscal.com>
Cc: Teresa Li <teresa@lawofficesofteresali.com>; Daniel Balaban <daniel@dbaslaw.com>; Kahren Harutyunyan <Kahren@dbaslaw.com>; Andrew Spielberger <andrew@dbaslaw.com>
Subject: Re: Juarez v. PVA - scheduling of conference per L.R. 7-3

Alex,

Can we do a conference call tomorrow? We are free tomorrow anytime. Thanks,

Teresa
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On Jul 16, 2018, at 8:56 AM, Catalonia, Alex
acatalona@bkscal.com wrote:

Teresa,

I need to have a telephone conference with you or one of your co-counsel re: our upcoming motion for summary judgment pursuant to L.R. 7-3. Can one of you speak today, possibly in the afternoon? What time would work best for you?

-Alex

Alex P. Catalonia, Esq. | Becherer Kannett & Schweitzer

Northern California: 1255 Powell Street,
Emeryville, CA 94608

Southern California: 85 North Raymond
Avenue, Pasadena, CA 91103

Tel: 510.658.3600
Fax: 510.658.1151
Email: acatalona@bkscal.com | www.bkscal.com

CERTIFICATE OF SERVICE

2 The undersigned hereby certifies that on August 27, 2018, a true and
3 correct copy of **DECLARATION OF ALEX P. CATALONA IN SUPPORT**
4 **OF DEFENDANT PRECISION VALVE & AUTOMATION, INC.'S**
5 **MOTION FOR SUMMARY JUDGMENT** has been served via ECF upon all
6 counsel of record in the Court's electronic filing system.

By: /s/ Jerry Dumla

**Becherer
Kannett &
Schweitzer**

1255 Powell St.
Emeryville, CA
94608
510-658-3600

**DECLARATION OF ALEX P. CATALONA IN SUPPORT OF DEFENDANT PRECISION VALVE
& AUTOMATION, INC.'S MOTION FOR SUMMARY JUDGMENT**